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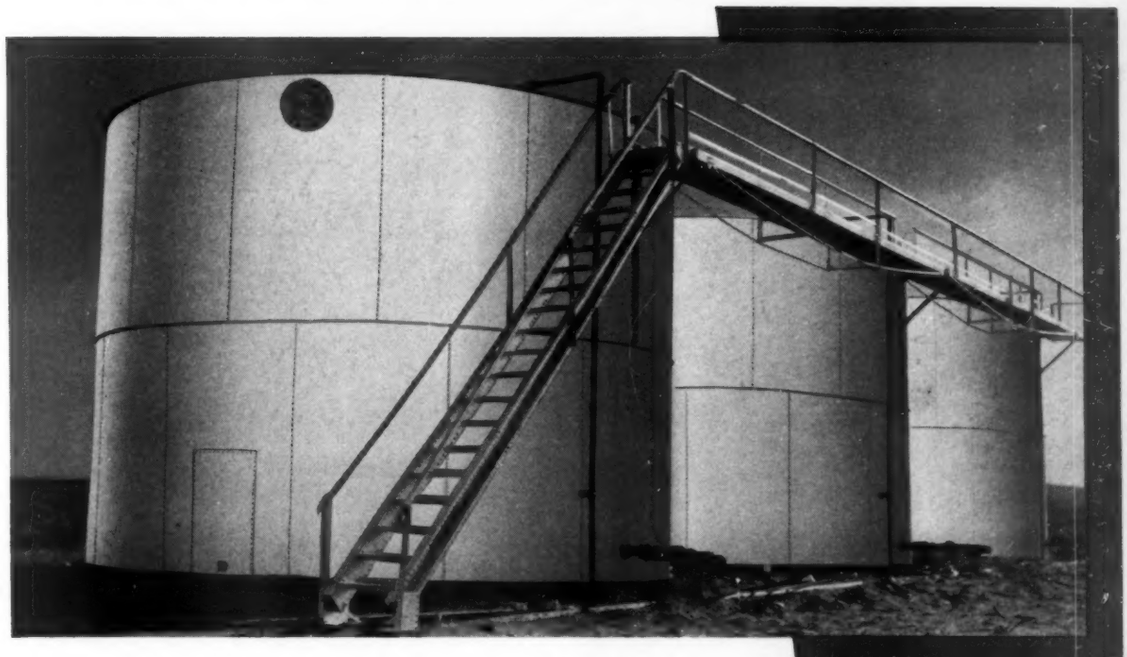


FOR "SOUR CRUDE" STORAGE

Maloney "Double Hot-Dip" Galvanized Bolted Steel Tanks

MALONEY offers you the solution for the "sour crude" storage problem—in MALONEY Special-Heavy "Double Hot-Dip" Galvanized Bolted Steel Tanks.

In actual field experience, galvanizing is proving the most practical storage obtainable for sour crude. Success, however, depends directly on the *efficiency* of the galvanized coating.

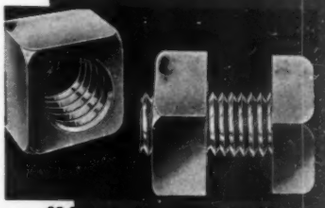
MALONEY applies to standard MALONEY Bolted Steel Tanks an especially heavy and tenacious galvanized coating. The zinc spelter weighs 7 pounds per 100 pounds of steel, and the coating is applied *after fabrication* by the most approved method. Steel sheets and parts are first given prolonged treatment in muriatic bath to assure extra-tight bond between steel and zinc. Virgin zinc 99.9% pure, with positively no lead content, is then applied by the "double hot dip" process. The finished coating successfully withstands the severe Preece Test of 6 one-minute dips in copper sulphate solution.

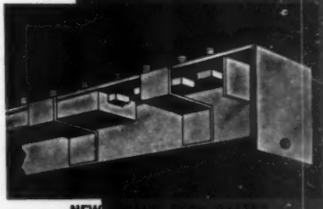
Application of coating *after fabrication* coats all edges, including bolt holes, and avoids any possible damage to the coating during fabrication.

Our special bolts of 90,000 pounds tensile strength are also hot-dip galvanized for use with our galvanized tanks. Threads of the nuts are re-tapped after galvanizing. Heads of these bolts will not turn off, and threads will not strip.

MALONEY Galvanized Tanks are in every case standard MALONEY Tanks possessing all standard MALONEY advantages, including construction of Keystone Copper Steel, our special cloth-inserted packing of live red rubber (which shows practically no deterioration after 5-year immersion-test in gasoline), the MALONEY patented crimp at seams and joints, extra-heavy 2x2 steel deck rafters, segmental decks, large 30" x 48" clean-out plate, non-spark aluminum vacuum-pressure valve and thief hatch.

Capacities 100 to 10,000 barrels, A.P.I. dimensions. Distributors with adequate stocks at all principal petroleum points. Export shipments securely packed in steel-bound crates.





MALONEY TANKS

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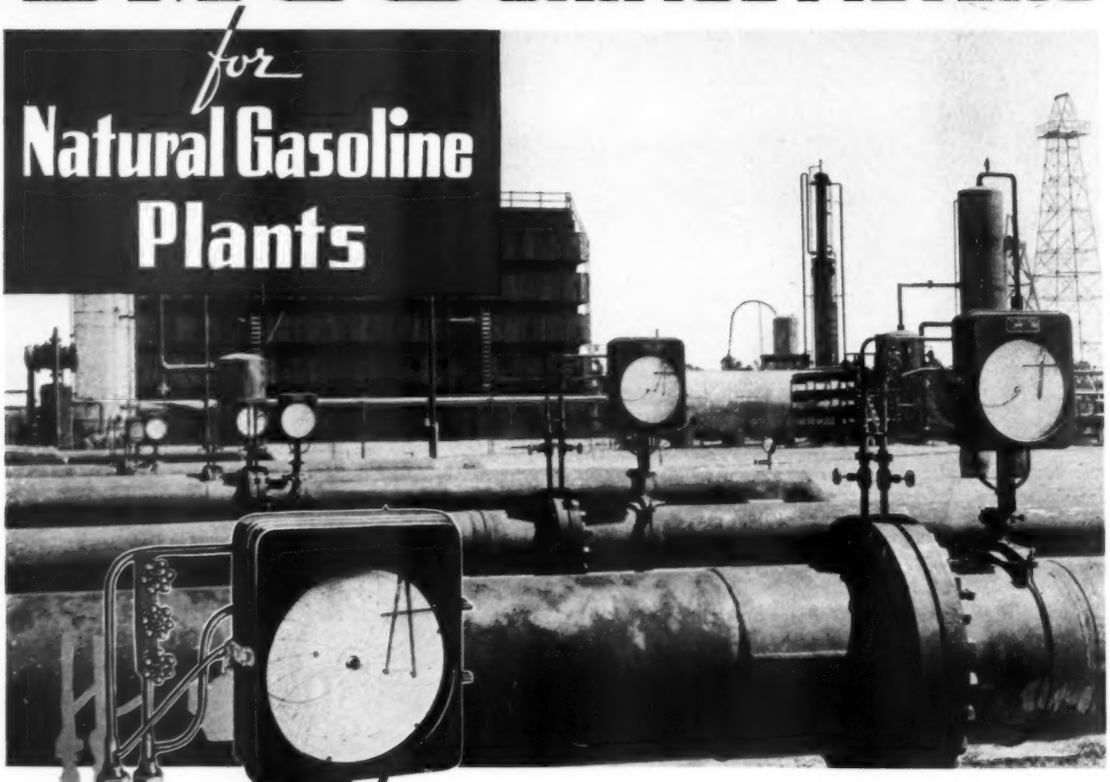
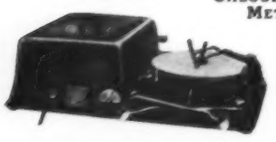
EMCO ORIFICE METERS

for Natural Gasoline Plants



THE EMCO-McGAUGHY INTEGRATOR FOR CALCULATING ORIFICE METER CHARTS



The EMCO-McGaughy Integrator presents the only present known method of obtaining EXACT calculation of the extension of Orifice Meter Charts. With it chance of human error is eliminated entirely and chart calculations are speeded up to the extent that one operator with an EMCO-McGaughy Integrator can calculate four times as many charts as can be done by the inspection method in the same given time.

EMCO Orifice Meters, unique in design and constructed of the finest materials including the liberal use of special alloys and stainless steel, to prevent corrosion, are being installed by experienced Natural Gasoline Plant Operators everywhere. Accessibility to all working parts is a big factor, likewise, the one piece welded manifold. Write for Bulletin 1013 —it describes fully the features of EMCO Orifice Meters.

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HERE ARE *Extra Profits*

Thousands of runs under every field condition imaginable have proved the safety and efficiency of the Baker Wall Scraper.

BLADES ALWAYS CLOSE

The blades close downward into the body when their work is done, but if a piece of rock or steel should keep the blades from closing, they will shear through any such obstruction when the top of the blades contact the casing shoe while coming out of the hole.

SMALL, SAFE O. D.

In event a weak drilling string should twist-off, it is easy to wash-over a Baker Wall Scraper because its body O.D. is no greater than the tool joints above.

GREAT REAMING CAPACITY

All Baker Wall Scrapers have unequalled capacity for expansion. For example: the No. 6 size runs in through 9⅝" A.P.I. Casing and then reams any desired diameter from 9¼" to 19" depending upon the size of blades used.

COMPLETE SAFETY

The strong body construction, and blades of chrome vanadium steel insure operating safety —in fact we have no knowledge of a failure of any Baker Wall Scraper.

BAKER OIL TOOLS, INC.
POST OFFICE BOX 609, HUNTINGTON PARK, CALIFORNIA
COLUMBIA • SUFF • HOUSTON • OKLAHOMA CITY • TULSA • NEW YORK

There are so many ways in which the Baker Wall Scraper will make *extra* profits for you that it should be available for every drilling well. Resourceful operators and engineers immediately will recognize savings and profits to be derived from the following advantages:

Bringing in and Cleaning Up the Well--

The tendency of rotary mud to plaster the walls of the hole is well known. The Baker Wall Scraper is ideal for removing all rotary mud and other substances from the face of the oil sand and enlarging the area of the sand body to obtain maximum production. Many wells are brought in more easily and in less time when the oil sands have been thoroughly scraped.

Straightening Crooked Holes--

For starting a wide shoulder as the first step in bringing a crooked hole back to vertical, great expansion at any desired point is an exclusive advantage of the Baker Wall Scraper. For example, in the larger sizes it is possible to cut a square shoulder with a width equal to the diameter of the hole being drilled.

Underreaming Greater Clearance for Liners and Casings--

Larger sizes of liners can be run where the hole has been underreamed, and turning down of couplings on liners can be eliminated. Liners can be pulled easily from holes enlarged with the Baker Wall Scraper.

It is often possible to overcome a miscalculation in casing programs, or rectify unavoidably "tight holes" by underreaming to a sufficient diameter to permit setting a larger size of casing than otherwise would be possible.

Underreaming as an Aid to Cementing--

Complete distribution of cement around the shoe joint and a better bond with the formation can be secured by underreaming the last 20 to 40 feet from the bottom before introducing the casing. This practice leaves the smaller originally drilled hole in which to center the lower section of casing suspended in the underreamed cavity. A cavity can likewise be formed in any part of the well which is to be cemented, such as when shutting off intermediate water.

OTHER USES . . .

. . . together with details of construction and complete specifications are on pages 168 to 216 of your 1936 Composite Catalog; also in the large free Baker Catalog gladly sent on request.

BAKER ROTARY WALL SCRAPER

West Coast Is Hitting Its Stride Again

RETAIL PRICES of gasoline on the West Coast were raised 2 cents this week, on top of a 2½-cent increase a week earlier. This stepping up of prices, following months of market demoralization, is not only significant of the improved conditions in that territory, but is likely to exercise a bracing influence on other areas at a time when it is needed. Weakness in the retail price structure at various scattered points east of the Rocky Mountains is attributable not alone to top heavy inventories of motor fuel which accumulated in the first three months of the year, but to the familiar covert agreements between the retailer and his customer. To what extent large companies with dealer outlets in addition to their privately owned stations are to blame for the reported return to the mischievous practice to increase gallonage is a matter of speculation.

Maintenance thus far of a steady tankcar gasoline market in the Mid-Continent area, notwithstanding overproduction which in large measure was unavoidable because of the insistent demand for heating oils, affords a gratifying commentary on what leaders in the industry have achieved in the last year in the direction of market stabilization.

The week's reports from producing areas point to the probability of new fields or extensions of old ones being opened in an unusual number of areas. Completion of a big saturated gasser in Bienville Parish, North Louisiana, proves up a structure which is reported to have the earmarks of another Rodessa. Indications of a new field near the center of Colorado are seen in an important oil show in a well in the Hartsel district of Park County. The third oil field on the edges of Galveston Bay in the Cotton Lake district of northern Chambers County seemed certain when a well of the Salt Dome Oil Corp. and Gem Oil Corp. tested 750 feet of 38-gravity oil on an eight-minute drillstem test. Opening of a new pool in southern Barton County, Kansas, was indicated by oil-saturated cores taken from a test 6 miles southwest of Great Bend. The Fitts pool in Pontotoc County, Oklahoma, was extended three-eighths of a mile to the northeast by Blackstock & Deaner's test, which flowed 1,064 barrels of oil in 1 hour and 55 minutes after being acidized.

Production 2,902,130
Increase 17,482

A commercial producer in southeast Yoakum County, Texas, will result in other tests being started in Yoakum, Cochran, Gaines and perhaps other counties. Interest in Michigan's oldest oil territory is revived by discovery of a good well near the village of Deerfield, Monroe County. Aggressive exploratory work in California inspires predictions of new fields being opened in that state before 1936 ends. Two new fields already have been opened in that state since the beginning of the year.

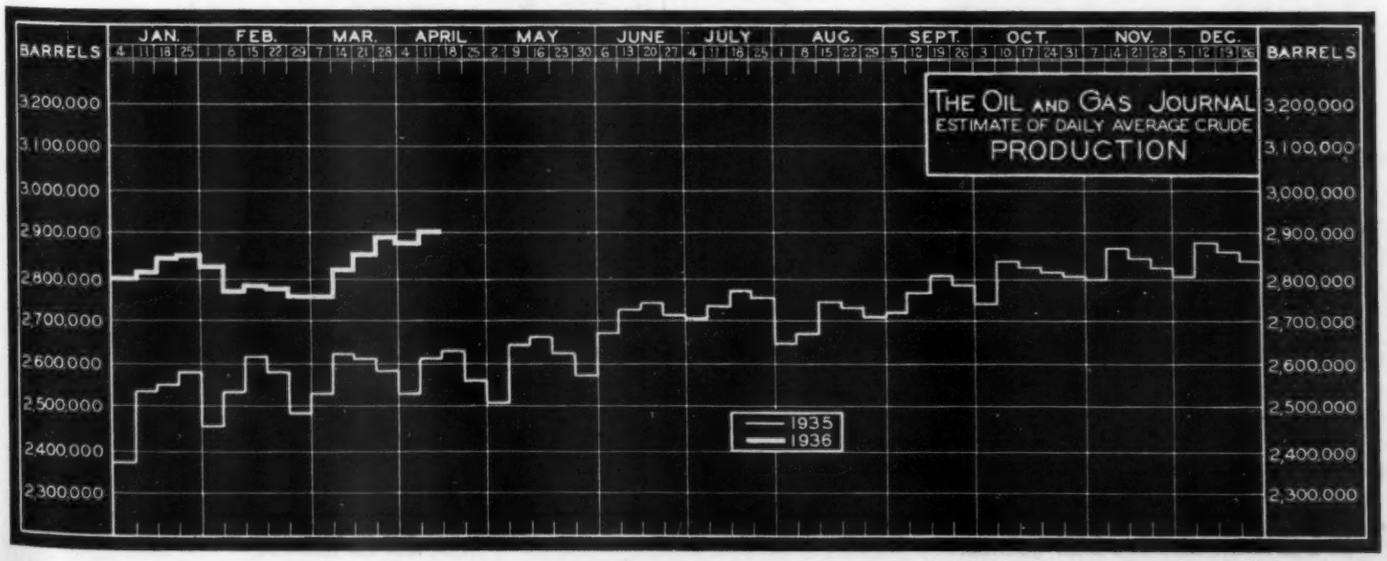
Daily Average Production for Week

	April 11 1936	April 4 1936	April 13 1935
Oklahoma City	153,800	150,500	179,550
Seminole-St. Louis	99,915	95,625	102,475
Remainder of State	296,000	281,275	247,825
Total Oklahoma	549,715	527,400	529,850
East Texas	450,047	456,752	468,451
West Texas	179,487	177,198	144,970
North Central Texas	83,194	83,150	88,487
Texas Panhandle	57,193	60,648	55,683
East Central Texas	48,979	48,097	49,773
Gulf Coast Texas	244,587	236,196	179,184
Southwest Texas	76,184	74,853	61,453
Total State of Texas	1,139,671	1,136,894	1,048,001
North Louisiana	61,615	71,995	22,960
Gulf Coast Louisiana	140,600	140,450	100,210
Total Louisiana	202,215	212,445	123,170
Santa Fe Springs	42,650	42,900	40,500
Long Beach	69,500	67,900	71,000
Mountain View	26,600	26,500	10,400
Kettleman Hills	76,900	75,750	52,000
Remainder of State	358,150	348,700	323,100
Total California	573,800	561,750	497,000
Kansas	148,550	151,775	144,025
Arkansas	30,125	29,930	30,375
Eastern Fields	108,000	108,000	106,000
Michigan	32,744	38,974	37,850
Rocky Mountain area	117,310	117,480	98,540
Total United States	2,902,130	2,884,648	2,614,811

Crude Oil Stocks in U. S.

(BUREAU OF MINES ESTIMATES)

Week ending March 28, 1936	311,169,000
Week ending March 21, 1936	310,350,000
Week ending March 30, 1935	341,243,000



SPARKS FROM THE NEWS

Effect

As refineries are modernized and gasoline demand mounts it will be all too easy to over-build individual units, resulting in "unstable" markets.

Oracle

If grand jury to be convened at Washington finds out what is wrong with oil marketing and the remedy the industry hopes they will not keep findings secret.

Obstinacy

No one will gain by obstinate attitude on water disposal. Oil men do not want to damage others and states need oil revenue.

Proviso

If Rodessa crude is properly refined it produces as good gasoline as any Mid-Continent oil. But it must be cracked.

Indicator

New car registrations indicate gasoline consumption. March car production exceeds year ago by 15 per cent.

Flight

Air transport companies have been consuming more gasoline. A 40-passenger experimental plane and proposed transatlantic commercial flights are indicative of the future.

Relativity

Within few months crude demand plus exports will be 3,000,000 bbls. a day. It would fill a hole 400 feet long, 400 feet wide and 100 feet deep.

Sports

In estimating gasoline consumption due consideration should be given to political rallies as well as baseball and football games.

Limelight

To assure busy oil men will not forget nation's capital grand jury investigation is to be started there in near future.

Addition

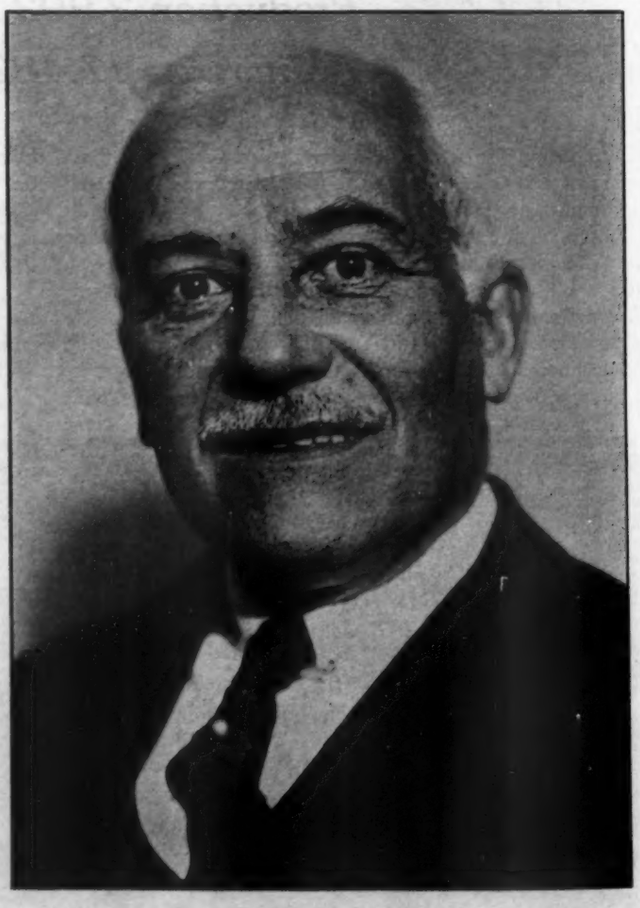
Integrated oil companies are adding another major division. It is now producing, refining, marketing and taxation.

Pleasure

Automotive engineers should be encouraged by oil industry in efforts to eliminate night driving glare. Gasoline consumption could be increased 20 per cent if family outings at night were pleasant.

Consolation

Resumption of normal gasoline prices on West Coast does not point to dumping operations on East Coast this summer.



DOUBLE ANNIVERSARY
Sir Henri Deterding celebrates his seventieth birthday April 19 and his fortieth year with the Royal-Dutch Shell.
(Underwood and Underwood)

"A good report," says President Boggs to Secretary Bourque as they rest outside the hotel

"You're telling me," says Salesman Locke to Salesman Keller as Mr. Gross and Mr. Henderson listen

W. P. R. A. Meeting Highlights

(Upper) Visitors from the Far East. Harry Lewis and L. C. Quackenbush

(Lower) A knockless chat between E. W. Webb and R. R. Irwin

"Briefs" gathered during the Western Petroleum Refiners Convention in Excelsior Springs, Mo., April 6, 7, 8.

"As the refiner goes so goes the market and as the market goes so goes the industry" followed by "Look and let us be sure we know where we are going," were two simple but convincing warnings given by C. E. Arnott. He pleaded for the sane guidance of the 300,000 or more dealers and station operators who look to refiners for a just settlement of marketing disputes. He concluded with "Go to the public through your dealer."

The decision of the Supreme Court in the Sugar Institute case will serve as a guide but not as a conclusive criterion for writing a new oil marketing code. The court choses to decide upon the facts in each case brought before it and there are many practices in the two industries which differ widely.

Ralph Horween's analysis of current social security legislation was a feature of the meeting. Not denying the need to provide in some manner for aged industrial workers he showed the hopeless detail and uncertainties involved in the new federal security laws. The worker is given no guarantee that payments will be made since the money goes into the general operating fund and it is left for each congress to vote an appropriation, the acts of one congress not binding those of another.

Gasoline will be sold by association members after April 15 according to the following classification:

U. S. Motor 62 octane and below
63 to 67 octane
68 to 70 octane (regular)

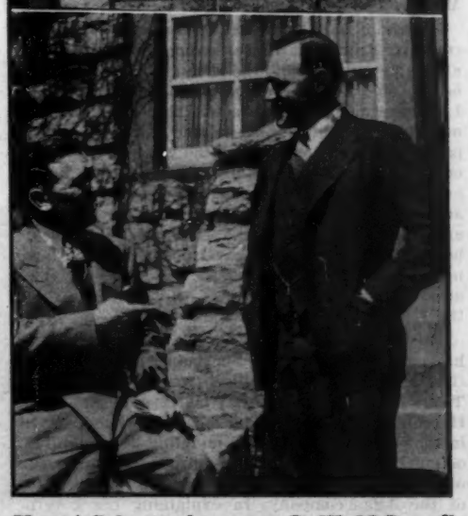
The effort to set a minimum octane specification on third grade failed.

May 23-30 will be supported as "Lubricate for Safety" week.

Gasoline specification committee work will be continued. Association sulfur specification remains same as federal (0.1 per cent) despite motion to liberalize to 0.15 per cent.

Members were urged to use the facilities of the Washington office to settle tax matters.

Even when motors are modified to take full advantage of the alcohol in a 10 per cent gasoline blend, a loss of 2 to 2½ per cent in power is witnessed according to Dr. G. G. Brown. It takes about as much coal to make alcohol from corn as the fuel value recovered from the alcohol. It would be more economical to mix the corn with the coal as a means of utilizing farm products.



(Upper) Sales in the open. R. W. McDowell and H. T. Ashton

(Lower) Renewing college days. Emby Kaye and Ralph Horween

Attempt of Government to Stop Rodessa Excess Output Fails

SHREVEPORT, La., Apr. 13.—Officials of Pelican Oil & Gasoline Co., Inc., and East Texas Refining Co., backed by Louisiana Conservation Commission, appear to have won their initial skirmish with the Federal conservation representatives who in federal court at Sherman, Tex., on Saturday admitted they had no jurisdiction over the interstate movement of oil from the Rodessa properties of the Pelican company through the pipe line of the East Texas company, buyer of the crude.

Earlier the Federal Tender Board had ruled the oil was contraband under the Connally act and refused to issue a permit for movement of 125,000 bbls. to a Gulf Coast terminal from Longview, terminal of the East Texas line. Suit was brought by the East Texas company to force the tender board to permit movement of the crude. At the Sherman hearing Saturday, Richard Hill, attorney for the tender board, admitted to federal Judge Randolph Bryant the government representatives had no authority to require tenders in movement of the oil "through" Texas. The court granted the request the suit be dismissed without prejudice, thus sustaining the East Texas company and permitting movement of the crude purchased from Pelican and resold to Tide Water Oil Co. for movement to the Gulf Coast terminal. Later the government representatives asserted only "through" movement of the crude was involved in the hearing, indicating that if the "oil came to rest" in Texas they would have authority to require tenders based on whether the oil was legally produced.

At Sherman evidence was produced that Edward S. Maestri, Louisiana conservation commissioner, and Dr. J. A. Shaw, head of minerals division, had not rescinded their orders of March 24 to the Pelican and East Texas companies permitting production and transportation of 20,000 bbls. of crude from the 13 wells of Pelican on the Sexton lease Rodessa field.

This special permit caused considerable excitement in Louisiana and Texas oil circles 10 days ago when it became known. The wells were cut back to the average allowable of the Rodessa field of 350 bbls. per day after they had produced at the rate of 1,000 bbls. per day for four or five days. This action was taken after Governor Noe had been advised of the permit through complaints of other operators held to a 400-bbl. allowable in March and 350 in April.

There is now nothing to prevent the Pelican company from legally reopening its wells to the allowable granted by the commission which was based on the market demand feature of the Louisiana conservation acts. The crude can be moved "through" Texas by the purchasing company. Legal opinion leans to the view that the Federal Tender Board would have no jurisdiction even if the oil was "brought to rest" in Texas and then tendered for reshipment to another buyer and through another pipe line. This opinion is based on the contention government officials have no jurisdiction so long as the oil is produced in accordance with the laws of the state in which the field is located.

Federal Tender Board No. 1 was successful in having Judge Bryant at Sherman sustain its position in refusing to approve two tenders of East Texas crude requested by Atlas Pipe Line Co. and Hercules Gasoline Co. The legal question involved in that case had to do with mingling light distillate claimed to have been illegally produced with crude oil for shipment to the Shreveport, La., refinery of the Atlas company. In explaining the government's position in this case Special Attorney Hill said:

"It runs this excess scrubber oil into its boiler still and produces therefrom straightrun gasoline and topped crude. It commingles this straightrun gasoline with its natural or casinghead gasoline and ships the commingled gasoline in interstate commerce under federal tenders covering casinghead gasoline. It delivers the said topped crude to Atlas at Longview for storage purposes only.

"The Atlas owns and operated a pipe line gathering system in the East Texas field and an interstate pipe line system and transports all of the oil received in interstate commerce. It is not equipped to do a storage business. When Atlas receives the topped crude from the Hercules company which is a product of contraband oil, if necessary, it mixes and commingles the same with its other oil and transports it into interstate commerce under federal forecast tenders covering crude oil."

At Washington, D. C., George W. Holland, director of the Federal Conservation Division, reported to Secretary Ickes that the establishment of a tender board in Rodessa was not necessary because the area "is not the potential source of contraband oil it appeared to be a short time ago." He is reported to have said, "Louisiana authorities at present appear to have the situation well in hand and they expressed confidence in their ability to control it." He has recommended to Secretary Ickes a qualified federal personnel be established at Rodessa to observe developments and cooperate with state officials in Louisiana and Texas.

Senator Connally of Texas admitted that apparently the federal government was powerless to interfere so long as the oil was produced in compliance with Louisiana laws. He said:

"The federal tender board in East Texas has found in most cases that the Rodessa oil coming into Texas was legally produced in accordance with Louisiana state law—and therefore the government could not invoke the Connally law to stop it. It looks like all Texas and other affected states can do is to try to get Louisiana to lower its daily allowables."

The daily allowable production of the five producing wells in the Cass County, Texas, end of the Rodessa field last week were curtailed to 350 bbls. daily. The production of the Rodessa field from 129 wells last week averaged 55,000 bbls. daily, with seven new completions. Fifty-two wells are drilling with 34 rigs.

W.P.R.A. Election

C. M. Boggs, president of the Kanotex Refining Co., was the unanimous choice of members of the Western Petroleum Refiners Association to head the association for the coming year. In accepting the office Mr. Boggs thanked the members for the cooperation they had given him during the term just ending and asked they continue to work in the same manner during the coming year. Other officers elected include: Executive vice president, H. T. Ashton, Socony-Vacuum Oil Co. (Lubrite); vice presidents, Roy B. Jones, Panhandle Refining Co.; R. W. McDowell, Mid-Continent Petroleum Corp.; and T. H. Barton, Lion Oil Refining Co.; secretary-treasurer, A. V. Bourque; and assistant treasurer, Mary Sue Collins.

Board of directors include F. W. Burford, East Texas Refining Co.; Sheldon Clark, Sinclair Refining Co.; C. W. Cahoon, Olney Oil & Refining Co.; A. L. Derby, Derby Oil Co.; George P. Dickey, Dickey Oil & Refining Co.; T. W. Eason, Eason Oil Co.; Alexander Fraser, Shell Petroleum Corp.; B. H. Gray, Atlas Oil Corp.; R. G. Cocanower, Waggoner Refining Co.; D. P. Hamilton, Root Petroleum Co.; T. A. Helling, El Dorado Refining Co.; C. L. Henderson, Vickers Petroleum Co.; R. R. Irwin, Socony-Vacuum Oil Co. (White Eagle); H. J. Kennedy, Continental Oil Co.; H. W. Camp, Empire Oil & Refining Co.; I. A. O'Shaughnessy, Globe Oil & Refining Co.; L. B. McCammon, Marathon Oil Co.; B. L. Majewski, Deep Rock Oil Corp.; F. L. Martin, Sunray Oil Co.; L. H. Prichard, Anderson-Prichard Oil Corp.; N. E. Schneider, Shamrock Oil & Gas Corp.; L. B. Simmons, Rock Island Refining Co.; W. G. Skelly, Skelly Oil Co.; C. S. Smith, National Refining Co.; H. A. Trower, Phillips Petroleum Co.; J. W. Warner, Tide Water Oil Co.; C. B. Watson, Pure Oil Co.; Rex H. Winget, Cushing Refining & Gasoline Co.; and M. J. Grogan, Rodessa Oil & Refining Co.

Ex-officio director, George D. Locke, Barnsdall Oil Co.

Over a Hundred Oklahoma City Tests Amid "Gushers" and Guardsmen

The "war" at Oklahoma City continues. In the background is the mad rush to start scores of tests in the area near the capitol, while gusher wells are being completed in the first extension area.

There were three "major engagements" during the week. Most spectacular was the fight between the state and city governments, with Governor Marland calling out the national guard to prevent city interference with drilling on state lands. Five wells have been located on the capitol grounds and operations have started. Governor Marland said the work would continue under state direction until taken over by Sunray Oil Co., to which the State Board of Affairs Saturday awarded leases for $372,200 on all state tracts except one, which was leased to Anderson-Prichard Oil Corp. for $3,055. The city is seeking to restrain drilling on state land by injunction. Excitement revolved around efforts to serve Governor Marland with a subpoena, he refusing to accept service.

Threats to drill in defiance of city ordinances and threats to sue all concerned with extended drilling were made at rival mass meetings Friday night. One group of owners is seeking to have the entire capitol area opened to drilling, while another is opposing extension to Lincoln Terrace addition.

At another meeting attended by 170 home owners this group took the position that drilling must be permitted so the owners can salvage what is left of property values depleted as a result of drilling on nearby tracts.

Both groups have petitions to present to city council, which had city firemen conduct a straw poll.

The third scene of action revolved around the "outlaw" well on the Harn tract southeast of the capitol. This well, two blocks south of the capitol, was carried to 40 feet before casing was set. The operators, K. & L. Petroleum Co., were prepared to resume drilling unless prevented by court. District Judge R. P. Hill ordered drilling suspended pending hearing.

Field work in the districts already approved for drilling continued to gain. The zone north and east of the capitol and governor's mansion is in the throes of a boom. Twenty gusher wells already have been completed in the extension area, several having potentials above 20,000 bbls. daily, several others are nearing completion and upwards of 100 tests are at various stages. As each new gusher drains the reserves from beneath adjacent tracts on which there is no drilling, the demand for drilling extension to include all the northeast side gains force. Oil men predict eventually the entire district will be opened to drilling.

C. V. Pittman, Geophysical Service Co., Dallas, Tex., and R. J. Forsyth, Tide Water Oil Co., Houston, Tex.

Walter H. Meier, Atlantic Oil Producing Co., Dallas, Tex., saying good-by to H. N. Blakeslee, American Petroleum Institute, Dallas

Geo. P. Livermore, Manderville and Thompson, Inc., Midland, Tex., one of the speakers at the Friday afternoon session

A.P.I. Production Division Meetings at Shreveport Discuss Oil Problems

By L. G. E. BIGNELL

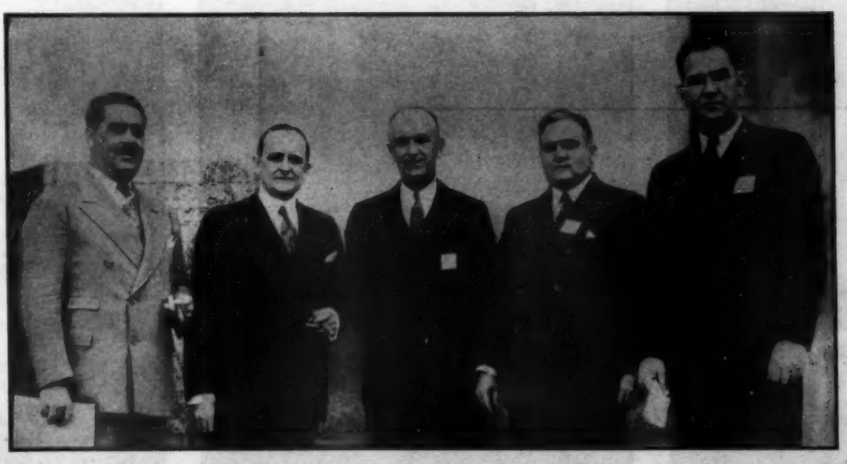
SHREVEPORT, La., Apr. 13.—Southern hospitality with sound advice regarding the future of the oil industry in Louisiana formed the background of the spring meeting of the Southwestern District, American Petroleum Institute, Division of Production, held here April 9 and 10, with more than 400 registered. The hospitality was furnished by the citizens of Shreveport and surrounding towns and the advice in the addresses of Mayor Sam Cardwell of Shreveport, an oil man; George A. Hill, Jr., president of the Houston Oil Co., of Houston, Tex., and William R. Boyd, Jr., executive vice president of the American Petroleum Institute, of New York City.

Mayor Cardwell declared the oil industry is the original "share-the-wealth" organization as the money spent for bonuses and royalty, equipment and labor, all finds its way back to the people of the communities, thus distributing the earnings from natural resources to the people at large.

George A. Hill, Jr., dwelt upon the valuable resources of Louisiana to be developed further and pointed out what may be accomplished if the Louisiana state authorities and the oil men work together in developing this joint trusteeship. He said:

"It would seem that the answer to the main question of conservation lies in the effort to truly promote real conservation and the avoidance of every character of waste and to coordinate the effort of all the oil-producing states, lawfully and effectively, through the medium of the Interstate Compact Commission to the end that each state's regulations in the conservation program among the oil-producing states will promote that equality and uniformity of restraint against wasteful production that will assure non-wasteful and beneficial use of this great natural resource for the owners and producers, the consumers and the tax collectors and their beneficiaries. Any program that disregards the legitimate stake of the first class will greatly impair or destroy the stake of the others."

C. K. Moresi, state geologist for Louisiana, followed Mr. Hill and outlined the natural resources of this state and how necessary it is to coordinate the operations of the various industries so all may prosper and none suffer. He had particular reference to the safeguarding of the fishing industry along the Gulf Coast from pollution of the waters there by waste from the oil fields now becoming so numerous in that area. Mr. Moresi quoted many interesting statistics to show the importance of Louisiana's fish and fur industry as well as the growing importance of the gas and oil business here and the size of the salt and sulfur industries.



Left to right: D. E. Buchanan, Hanlon-Buchanan, Inc.; Wm. R. Boyd, Jr.; Chase E. Sutton, Pure Oil Co., retiring chairman southwest district; Geo. A. Hill, Jr., president Houston Oil Co., Houston, Tex.; R. D. Risser, Shell Petroleum Co., Iowa, La., new chairman Southwestern District, A.P.I.

The address given by William R. Boyd, Jr. (published elsewhere in this issue of The Oil and Gas Journal) was well received by the audience which filled the Crystal Room of the Washington-Youree Hotel. Opening the afternoon session on

Thursday, Dr. Henry V. Howe, of the Louisiana State University, Baton Rouge, La., gave a very excellent paper upon "Louisiana Petroleum Stratigraphy" (also published in this issue of The Oil and Gas Journal). Doctor Howe reviewed briefly the many producing horizons known to exist in this state and outlined the possibilities of finding oil and gas in the areas underlain by these deposits.

J. S. Ivy, of the United Gas Public Service Co., of Houston, Tex., gave as complete a resume of the Rodessa field situation as has thus far been presented. This paper is also printed in this issue of The Oil and Gas Journal.

Claude P. Parsons, vice president of Halliburton Oil Well Cementing Co., of Duncan, Okla., has gone in for colored pictures and closed Thursday's program with an enlightening movie entitled "Highlights and Personalities—Southwestern District."

At the final two sessions on Friday the papers for the morning meeting were for the most part devoted to non-technical subjects. Walter H. Meier, Atlantic Oil Producing Co., Dallas, Tex., opened the meeting with a paper on "Vocational Training in the Petroleum Industry."

Allied with vocational training is accident prevention and J. L. Risinger, Magnolia Petroleum Co., Dallas, Tex., had as his subject "Protective Equipment Used in Accident Prevention."

The morning session closed after a paper by D. E. Buchanan, Hanlon-Buchanan, Inc., Tulsa, on "Membership in the Institute," in which he pointed out the many benefits that accrue to members of the A.P.I., and gave many interesting facts concerning the workings of the Institute.

For the final session the meeting reverted to technical problems and R. E. Bridges, Humble Oil & Refining Co., Wichita Falls, Tex., discussed "Back-Side Crank Pumping," enumerated the advantages to be gained through such installations in certain fields, the mechanical problems to be considered and how best to solve them.

The use of diesel engines for power in the oil industry is now recognized as good practice and its application to many power problems has given satisfactory solutions. The early models of diesel engines were for the most part rather bulky and heavy but the manufacturers quickly recognized these disadvantages and are now prepared to furnish engines of much lighter weight suitable for performing all power duties around the drilling or pumping wells.

The third and final paper was by George P. Livermore, Mandeville & Thompson, Inc., Midland, Tex., on "Mechanical Analysis of Size of Prime Movers for Rotary Drilling Rigs." A relatively short paper, it contained much valuable information.

A. G. Evans-Lombe, O. C. S. Fort Worth, Tex. and L. G. Hughes, Texas Co., Shreveport, La.

At the opening session, C. E. Sutton, Pure Oil Co., Houston, Tex., chairman of the southwestern district, acted as chairman. R. D. Risser, Shell Petroleum Corp., Iowa, La., was chairman for the afternoon session, and G. I. McBride, Texas Co., Shreveport, and George B. Corless, Humble Oil & Refining Co., Houston, Tex., served for the two last day sessions.

A banquet was arranged by the Shreveport Chamber of Commerce for Friday evening with a special trip to the Rodessa field on Saturday morning.

R. D. Risser, Shell Petroleum Corp., Iowa, La., was elected chairman of the district to succeed Chase E. Sutton, Pure Oil Co. G. I. McBride, Texas Co., Shreveport, was chosen vice chairman for Louisiana; A. W. Thompson, Mandeville-Thompson, Inc., Houston, vice chairman for Texas; W. C. O'Farrell, Standard Oil Co., El Dorado, Ark., vice chairman for Arkansas; Chester Davidson, Hobbs, N. Mex., vice chairman for New Mexico, and George B. Corless, Humble Oil & Refining Co., Houston, secretary-treasurer.

The members of the advisory committee are: C. E. Sutton, chairman, Pure Oil Co., Houston; E. H. Blum, Atlantic Oil Producing Co., Dallas; D. Collins, Shell Petroleum Corp., Houston, J. D. Collett, Collett and O'Keefe, Fort Worth; Charles Fitzgerald, Sinclair Prairie Pipe Line Co., Fort Worth; Charles Gladden, Magnolia Petroleum Co., Dallas; E. D. Goyer, Felmont Corp., Houston; Rex Hamaker, Reed Roller Bit Co., Houston; Sid Childress, Rio Bravo Oil Co., Houston; Roy B. Jones, Panhandle Refining Co., Wichita Falls; E. A. Landreth, Landreth Production Co., Fort Worth; A. M. McCorkle, Stanolind Oil & Gas Co., Fort Worth; R. S. McFarland, Seaboard Oil Co., Dallas.

F. Ray McGrew, Standard Pipe Line Co., Shreveport; R. H. Morrison, California Co., Dallas; John A. Ritter, Sun Oil Co., Dallas; Charles F. Roeser, Roeser and Hamilton Co., Fort Worth; Arch H. Rowan, Rowan Drilling Co., Fort Worth; Joe Russell, Gulf Oil Corp. of Pennsylvania, Houston; Ed Salrin, Tide Water Oil Co., Houston; F. C. Sealey, Texas Co., Houston; W. L. Todd, Columbia Oil & Gas Co., Dallas; John R. Suman, Humble Oil & Refining Co., Houston; R. A. Allison, Allison Drilling Co., Shreveport; J. R. McWilliams, Standard of Louisiana, Shreveport; C. W. Hughes, Arkansas Natural Gas Co., Shreveport; J. S. Hassan, Ohio Oil Co., Shreveport; N. C. McGowen, United Gas Public Service Corp., Shreveport; L. M. Moffitt, Triangle Drilling Co., Shreveport, and Arthur R. Campbell, Mid-Continent Oil and Gas Association, Shreveport.

Rodessa Sales Negotiations

SHREVEPORT, La., Apr. 13.—Two deals involving important production in Rodessa are pending but have not been consummated according to information available here. Officials of Magnolia Petroleum Co. at Dallas have confirmed negotiations for the properties of R. W. Norton, local operator, who has several producing wells in Rodessa with large undeveloped holdings. He also has acreage in adjoining areas. Several major companies have been reported interested in the Norton properties.

The sale of the valuable Rodessa properties of Haynes Drilling Co. of this city to Root Petroleum Co. has not been completed. This is said to involve a consideration of $15,000,000. Indicative that this has not been consummated was the sale of 133,000 bbls. of oil by Haynes company to Texas Co., to be moved in the recently completed pipe line connection of Texas Pipe Line Co. It is understood Texas Co. has also made arrangements to purchase a back allowable of Haynes company totaling approximately 150,000 bbls.

Left to right: G. I. McBride, Texas Co., Shreveport, La., vice chairman for Louisiana; W. C. O'Farrell, Standard Oil Co. of Louisiana, El Dorado, Ark., vice chairman for Arkansas; and G. B. Corless, Humble Oil & Refining Co., Houston, Tex., secretary-treasurer

All-Time Peak of Gasoline in Storage; Need 2,855,000 Bbls. Crude Daily

The forecast of domestic demand for motor fuel during the second quarter of 1936 indicates an increase of 6.2 per cent above the 113,926,000 bbls. shipped domestically during the second quarter of 1935, or a total of 121,000,000 bbls.

Export shipments are indicated as totaling 7,500,000 bbls., or 9.8 per cent above the 6,830,000 bbls. exported in the corresponding period of 1935.

Total estimated shipments, therefore, amount to 128,500,000 bbls., or 6.4 per cent above the 1935 period.

Gasoline Inventories

Preliminary estimates show that there was a total of 74,000,000 bbls. of finished and unfinished gasoline in storage as of March 31 of this year. This amount sets a new all-time peak for these inventories, which are about 8,000,000 bbls. above the level of a year ago.

Crude Oil Runs to Stills

Runs to stills necessary to meet demand, while at the same time bringing about an orderly liquidation of part of the existing gasoline stocks, are calculated to be 2,760,000 bbls. daily for the quarter. This compares with daily average runs to stills of 2,765,000 bbls. for the week ending March 28; 2,815,000 bbls. for the week ended March 21, and 2,815,000 bbls. for the week of March 14.

Total Requirements of Domestic Crude Oil

Requirements of domestic crude are estimated at 2,905,000 bbls. daily for the quarter.

Domestic Crude Oil Production

Estimated domestic crude oil production is based upon withdrawals from storage of 50,000 bbls. per day during the quarter, and indicates that it will be necessary for the industry to produce an average of 2,855,000 bbls. daily. This compares with the estimated daily average production on a U. S. Bureau of Mines basis of 2,907,200 bbls. for the week ended March 28; 2,897,950 bbls. for the week ended March 21, and 2,870,350 bbls. for the week of March 14.

1. Demand for Motor Fuel

The total demand for motor fuel during 1935, including domestic and export shipments, amounted to 465,277,000 bbls., indicating an increase of 6.95 per cent and establishing an all-time record. Domestic demand amounted to 434,897,000 bbls., or 5.90 per cent above 1934. Export shipments were 30,380,000 bbls., or about 6,000,000 bbls. greater than 1934 exports.

2. Finished and Unfinished Gasoline Inventories

The close of the year 1935 found 56,693,000 bbls. of these products in storage, or about 3,500,000 bbls. more than on December 31, 1934. During the month of January 5,920,000 bbls. were added. For February the increase is estimated at 8,450,000 bbls., while the additions during March appear at this time to have been about 3,000,000 bbls., indicating approximately 74,000,000 bbls. in storage at the end of the quarter. Another condition which contributed to these large gasoline inventories, also due to the weather, was the necessity of running large amounts of crude oil to stills in order to supply the great demand for home heating and industrial fuels, necessitating the production at the same time of gasoline which could not be moved and which, therefore, established record-breaking storage levels.

3. Crude Oil Runs to Stills

It is the opinion of the committee that if even-keel operations were adopted for the second and third quarters of this year, an economically-desirable level of 51,000,000 bbls. of gasoline inventories as of September 30 would be attained, without seriously disrupting present refinery schedules. This would require a daily average intake of 2,760,000 bbls. for the next six months.

Crude Oil Inventories

Crude oil inventories as of March 31 are estimated at about 308,000,000 bbls., the lowest point established since March 31, 1923. During the first quarter an estimated total of 6,435,000 bbls. was withdrawn from storage. The committee believes that there still remains a surplus sufficiently large to provide the indicated withdrawal of 50,000 bbls. daily during the second quarter.

A summary of pertinent figures follows (in thousands of barrels of 42 gallons):

	First quarter	Second quarter	Third quarter
Domestic demand for motor fuel:			
*1936	96,153+ 9.8%	121,000+ 6.2%	130,500+ 6.5%
1935	87,033	113,926	122,524
Export demand for motor fuel:			
*1936	6,772+12.2%	7,500+ 9.8%	7,200—15.5%
1935	5,967	6,830	8,829
Gasoline stocks, end of period:			
*1936	74,063	66,083	51,000
1935	66,290	59,507	51,334
Runs to stills, daily:			
*1936	2,780	2,760	2,760
1935	2,477	2,607	2,748
Crude oil production, daily:			
*1936	2,830	2,855	.....
1935	2,589	2,673	2,765
Crude oil stocks, end of period:			
*1936	308,196	303,646	.....
1935	339,139	334,757	329,705

*January 1936 actual; remainder 1936 estimated; 1935 all actual.

4. Crude Oil Production

It must be borne in mind that even-keel operation of refineries does not necessarily bring about an even rate of crude oil production. Such items as the varying trend of imports, exports, crude oil used as such, and transfers of crude oil used as fuel have their effect upon required crude oil production. After applying the various factors indicated, the calculation shows the necessity of producing new crude oil to the extent of 2,840,000 bbls. daily during April; 2,845,000 bbls. daily during May, and 2,875,000 bbls. during June, or an average of 2,855,000 bbls. per day for the second quarter.

5. The Third Quarter of 1936

In contemplating the reduction of gasoline inventories from their present level to an economically desirable level of 51,000,000 bbls. by the end of September, the committee recognized the interrelationship between the second and third quarters of the year, and gave consideration to the six months' period as a whole.

While detailed forecasts were not compiled for the third quarter, it was felt desirable to indicate the important items concerning that period. The domestic demand for motor fuel during the third quarter is forecast as 130,500,000 bbls., or an increase of 6.5 per cent above the corresponding period in 1935.

Export shipments are expected to total 7,200,000 bbls., compared with 8,829,000 bbls. exported during the third quarter of 1935.

The above figures, considered in relation to the reduction of gasoline inventories to a desirable economic level as of September 30, and giving consideration to the varying seasonal trends of the other factors in the calculation, indicate a daily average rate of runs to stills of 2,760,000 bbls. of crude oil for the second and third quarters of this year.

PETROLEUM ELECTRICAL INDUSTRY ASSOCIATION

The Petroleum Industry Electrical Association held its annual meeting April 9, 10 and 11 in Tulsa, Okla., with headquarters at the Mayo Hotel. Over 100 members registered during the sessions.

Left to right: P. F. Davis, Texas Pipe Line Co. of Oklahoma, vice president; J. W. Flint, Empire companies, past president; F. P. O'Connor, Stanolind Pipe Line Co., president; and H. E. Browne, Sinclair Prairie Pipe Line Co., secretary-treasurer

General business sessions were held the first two days of the meeting during which following officers were elected for the ensuing year: F. P. O'Connor, Stanolind Pipe Line Co., Tulsa, president: P. F. Davis, Texas Pipe Line Co. of Oklahoma, Tulsa, vice president; H. E. Browne, Sinclair Prairie Pipe Line Co., Independence, Kans., secretary-treasurer.

During the meeting the following papers were delivered: "Safe Driving," by G. O. Lockwood, Empire Oil Co., Bartlesville; "Pipe Line Electrolysis," by V. J. Siddell, Stanolind Pipe Line Co., Tulsa; "An Informal Discussion on Telephones," by Paul Reeves, Southwestern Bell Telephone Co.; "Direct Currents," by C. E. Foster, Oklahoma Pipe Line Co.; "Induction Interference," by E. B. Jennings, Southwestern Bell Telephone Co.; "Dust Storm Static," by W. T. Bulla, American National Pipe Line Co., Chicago; "Telephone Transmission," by L. E. Adler, Magnolia Pipe Line Co., Dallas; "Use of Alternating Current at Pipe Line Pump Stations," by W. S. Dyer, Ajax Pipe Line Co., and an illustrated talk on "Automatic Tank Gauges," by Mr. Hammer of the Sinclair Prairie Pipe Line Co., Tulsa.

The meeting of the association for the next year, it was decided, will be held in Shreveport, La.

Natural Gasoline

Texas Gasoline Plants

Texas natural gasoline plant reports for the month of February reflect an average recovery of .75 gallon per 1,000 feet of natural gas processed as compared with .649 gallon in January, according to the monthly summary prepared at the direction of the Railroad Commission of Texas. This increase may be attributed to two factors: An increase in the volume of gas reported by plants operating in the North Texas area, where the recovery in some instances runs as high as 14 gallons per 1,000 feet, and an appreciable decrease in the amount of gas processed in the lean Panhandle area, where the recovery averages only .48 gallon per 1,000 feet.

Total natural gasoline produced daily amounted to 1,447,238 gallons as compared with a recovery of 1,490,181 gallons in January.

During February 109 plants processed a total of 600,071,000 feet of casinghead gas, 854,903,000 feet of sweet gas and 554,778,000 feet of sour gas daily; the total intake volume being 2,009,752,000 feet daily. Extraction losses amounted to 109,786,000 feet daily. The total amount of gas processed in February was lower than that of January by approximately 300,000,000 feet, the latter figure being 2,309,146,000 feet.

Texas Panhandle with 44 plants operating processed a total of 1,554,303,000 feet and West Texas with 31 plants operating processed a daily total of 156,449,000 feet of gas.

Approximately 832,061 pounds of carbon black were produced daily during February; this value being partially an estimate from the recovery per 1,000 feet given on the carbon black reports. The average recovery computed on this basis was 1.49 pounds per 1,000 feet of gas and was somewhat higher than the January recovery of 1.41 pounds per 1,000 feet. The total amount of residue gas purchased daily from gasoline plants manufacturing carbon black was 557,417,000 feet as compared with 606,779,000 feet in January. There were 34 plants operating during the month, 30 of which were located in the Panhandle.

The effect upon Panhandle gas production of the recent federal court decisions which, in effect, restricted carbon black manufacture to sour and casinghead gas, and which dismissed as chimerical, engineering theories as to the existence of waste in the sweet gas area, could not be determined at that time, according to the report.

Bureau of Mines Report

The production of natural gasoline in the United States showed a material decline in February, 1936, according to a report prepared by the Bureau of Mines. The daily average during February was 4,629,000 gallons, compared with an average of 4,949,000 gallons for January and 4,483,000 gallons for September, 1935, the last month in which the output was lower. Most of the major fields and districts showed a decline in production during the month, the daily average output in the Panhandle declining 21 per cent between January and February.

Total production during the month was 19,194,000 gallons lower than that of the preceding month, the total production by districts being as follows: Appalachian, 6,693,000 gallons; Illinois, Michigan and Kentucky, 893,000 gallons; Oklahoma, 30,230,000; Kansas, 2,691,000; Texas, 37,313,000; Louisiana, 5,159,000; Arkansas, 854,000; Rocky Mountain, 4,446,000, and California, 45,953,000 gallons. Total production for the first two months of 1936 was 25,651,000 gallons more than that of the same period of 1935.

Stocks of natural gasoline again increased, the total on February 29, being 177,156,000 gallons, compared with 165,312,000 gallons on hand January 31. The major portion of the increase in stocks during February was at refineries, these stocks increasing 8,064,000 gallons during the month and amounted to 100,170,000 gallons on February 29. Stocks at terminals and plants increased from 73,206,000 to 76,986,000 gallons in the same period. Stocks in Oklahoma increased from 12,370,000 gallons to 17,286,000 gallons, in Texas they decreased from 58,917,000 to 56,863,000 gallons and in California increased from 74,597,000 gallons to 81,884,000 gallons.

Exports of natural gasoline in February reacted from the low point reached in January, but deliveries to refinery-owned bulk plants and to jobbers and retailers continued to decline. The average vapor pressure of the refinery shipments continued to increase because of seasonal influences, but the average for "direct" shipments showed no material change.

Mid-Continent Expands Plant

Mid-Continent Petroleum Corp. expects to increase the capacity of its natural gasoline plant in the Holdenville, Okla., area to take additional gas produced in the new Olympic field, 12 miles north of Holdenville. Consideration has also been given to building a new plant in the Olympic field.

Natural Gas

Oklahoma Natural Issue

TOPEKA, Kans., Apr. 13.—The Kansas Corporation Commission has granted a certificate to the Oklahoma Natural Gas Co. for the issuance of $45,120,000 of stocks and bonds to refinance outstanding obligations and for other corporate purposes.

The company, with Kansas properties valued at $4,983,695 and Oklahoma properties valued at $60,740,575, was authorized to issue $20,000,000 first mortgage bonds, series A; $11,000,000 convertible debentures; 22,200 shares 6 per cent preferred stock, $100 a share par value, and 793,200 shares of common stock, $15 par value.

The name of the Oklahoma Natural Gas Co. will be changed to Oklahoma Gas Service Co. at the common stockholders' meeting in Wilmington, Del., Saturday.

R. W. Hendee, president, will attend the meeting.

Bradenhead Formula

AUSTIN, Tex., Apr. 13.—The Railroad Commission has postponed from April 14 to May 11 a hearing on an application of the Shamrock Oil & Gas Corp. to present evidence for a new formula in determining the open-flow potential for bradenhead gas wells.

Texas February Gas Production

The February summary of dry natural gas production and disposition in the state of Texas, compiled at the direction of the Railroad Commission of Texas, states there was found to be a slight drop in the total state potential. After a compilation of the semi-annual gas well tests taken in January was made, it was found that the February total was 30,291,107,000 feet daily against January total of 30,369,294,000 feet daily.

Daily withdrawals for all districts except for the Panhandle were, on an average, 19 per cent higher in February than in January. Because of the cessation of stripping activities in the Panhandle, however, the daily volume in that district fell off 15.5 per cent and the dominance exerted by the Panhandle volumes in the state averages caused the daily average production for the state to decline 9.5 per cent. Total daily gas production for January was 2,068,303,000 feet of which the Panhandle produced 1,695,762,000 feet as compared with a total in February of 1,872,833,000 feet with the Panhandle producing 1,483,258,000 feet.

Of the total dry gas produced during February, 62.6 per cent was utilized for light and fuel purposes as compared with 44.3 per cent during the month of January. Although a large percentage of this change was due to curtailing of stripping activities after February 15, some indeterminable amount resulted from the reclassification of some of the take. Gas freed into the air by gasoline companies amounted to 415,020,000 feet per day, or a decrease of approximately 250,000,000 feet per day from the January figure.

Preliminary Program for A.P.I. Tulsa Meetings, May 13-15

Meetings of 46 committees, of the Division of Production and Refining, and of the board of directors are scheduled on the preliminary program of the American Petroleum Institute's sixth mid-year meeting, May 13, 14 and 15, in Tulsa.

Thursday, May 14

9:30 a.m.—Production Division, Drilling Practice: (Sponsored by the Central Committee on Drilling and Production Practice.)

Papers on the following subjects are under consideration by the program committee:

Recent Developments in Rotary Drilling.

Use of Recording Gauges in Drill Stem Tests.

Welding Casing Strings.

Nickel-Alloy Steels in Production Equipment.

10 a.m.—Refining Division, Lubrication:

Axle Design as Affecting Lubrication Problems, W. R. Griswold, Packard Motor Car Co.

Fundamentals of Solvent Refining, John M. Poole.

10 a.m.—Board of directors.

2 p.m.—Production Division, Production Practice: (Sponsored by the Central Committee on Drilling and Production Practice.)

Papers on the following subjects are now under consideration by the program committee:

Control of Water in Pumping Wells and Proper Completion of Wells.

The Economic Life of Sucker Rods.

Individual Well-Servicing Units.

Back-side Crank Pumping.

2 p.m.—Refining Division, Miscellaneous:

Clay Treating of Motor Fuels, M. R. Mandelbaum, Process Management Corp., and P. R. Sawnson, M. W. Kellogg Co.

Color Restoration of Gasoline and Kerosene in the Field, J. B. Rather and L. C. Beard, Jr., Socony-Vacuum Oil Co., Inc.

Friday, May 15

9:30 a.m.—Production Division, Production Allocation, Problems and Research: (Sponsored by the Central Committee on Drilling and Production Practice.)

Papers on the following subjects are now under consideration by the program committee:

Productivity Index.

Relation of a Gas-Cap Operator in an Allocation Program.

Influence of Well Spacing on Ultimate Recovery.

Studies of Source Beds in the East Texas Basin.

10 a.m.—Refining Division, Dewaxing:

Developments in the Solvent Dewaxing Process. Speaker to be announced.

Dewaxing of Mid-Continent Residuum by Use of Propane, H. O. Forrest and Lee Van Horn, M. W. Kellogg Co.

A.P.I. Pittsburgh Meeting

The spring meeting of the Eastern District of the American Petroleum Institute Division of Production will be held June 4 and 5 in the William Penn Hotel, Pittsburgh, Pa. The program calls for four sessions for discussion, among other subjects, of drilling in gas wells under high pressure, repressuring limestone producing areas, taxation of oil production, gas measurements, and present signs for eastern oil and gas production. It is expected speakers will review the oil production situation in Michigan and Ohio. The annual stag dinner will be held the night of June 4.

President Axtell J. Byles, of the Institute, has accepted an invitation to address the meeting on "Production and the Compact."

The meeting will be in charge of the following committee chairmen: Program, J. C. Askam, Ohio Oil Co.; attendance, George Wittmer III, Wittmer Oil & Gas Co.; arrangements, Fred Benkert, Peoples Natural Gas Co., and registration, F. E. Eckert, of Hanley & Bird.

Pipe Line Activity

60-Mile Michigan Gas Line

MUSKEGON, Mich., Apr. 14.—Michigan Public Utilities Commission today issued an order authorizing the Grand Rapids Gas Light Co. to lay a 60-mile pipe line to serve Grand Rapids with 50-50 mixture of natural and artificial gas.

Company officials announced ground will be broken today to pipe gas from the Millbrook-Hinton-Belvidere Townships field in Mecosta and Montcalm Counties within 60 days.

State commission late Monday received a report from the U. S. Bureau of Mines which may show sufficient reserves now developed in the central Michigan field to warrant approval of 100 per cent natural fuel.

Detroit Line Contracts

H. C. Price, Inc., of Bartlesville, Okla., have been awarded the contract for electric welding 172 miles of 22-inch pipe for the Michigan Gas Transmission Corp. line from Muncie, Ind., to Detroit, Mich. W. S. Bibb Contracting Co. are the general contractors for the 172 miles in Indiana and Ohio.

Some 12,000 Dresser Style 38 couplings are being used on the 230 miles of this line.

Columbia Gas & Electric Co. has awarded to Crano Co., Chicago, a contract for all valves and fabricated piping required on the new line. Included are main line cast steel double disc gate valves, Venturi type, with 16-inch seats and 22-inch end flanges, equipped with by-passes; 12-inch cast steel double disc gate valves for river crossings; fabricated pipe tail pieces; fabricated pipe river crossing manifolds.

Executives of the company are planning to be in Kansas City Wednesday to close contracts for the construction of booster stations along the old line.

Borden Announces Pipe Line

MUSKEGON, Mich., Apr. 13.—Plans for a $6,000,000 system of oil barges and a 360-mile pipe line, which may solve the crude shortage facing half a dozen independent Michigan refineries, were announced by John Borden, president of the Old Dutch Refining Co.

A minimum daily supply of 10,000 bbls. of crude to be obtained from Louisiana and East Texas fields already has been oversubscribed by the Old Dutch and several other independents recently unable to meet their needs from Michigan fields.

The proposed system would involve transportation of crude from Louisiana up the Mississippi and Ohio Rivers to a point about 10 miles below Cincinnati and thence to Muskegon and other Michigan refinery centers through a 360-mile pipe line.

The project has been proposed by Detroit and Pittsburgh interests represented in negotiations in Michigan this week by Mark Hanna, of Detroit, and Walter Russell, of Pittsburgh. It is understood they already have made arrangements to guarantee a minimum of 10,000 bbls. of crude daily for 10 years.

An important factor in the deal is the price, the out-of-state interests agreeing to supply crude at 10 cents a barrel less than the prevailing price for Michigan crude at the refineries.

It is understood Old Dutch, now engaged in a $250,000 improvement program including the installation of a modern vapor-phase cracking unit, has subscribed for about 3,000 bbls. a day of the southern crude. Promoters of the barge and pipe line system, which will require about six months to place in operation, claim a 38 gravity crude which will make 32 per cent gasoline of 61 octane rating in a skimming plant. Sulfur content is .8 per cent.

Ever since last fall when Pure Transportation Co. started cutting off virtually all independent refinery operators on their supply of crude, Old Dutch and other plants have been seeking new supplies. Old Dutch purchased a former Mount Pleasant field line and moved it to the Crystal field in Montcalm County.

Dropping production in all Michigan fields, however, has made it increasingly difficult for the independents to get crude.

Kansas Gas Line

A 6-inch welded gas line is being laid by the Kansas Power & Light Co. from the Sinclair Prairie Oil Co. big gasser in SE SE NE section 17-24-4w, Reno County, Kansas, to the company's main line, 8 miles northwest.

Refinery Projects

Purchase California Refinery

HUNTINGTON BEACH, Calif., Apr. 11.—Don Jerome and William Iverson have purchased the Thagard & Mangold refinery at Huntington Beach, which has been inactive for some time and it is being converted into a road oil and asphalt plant. The name has been changed to the Eden Refining Co. and its first contract has been received from Orange County for road material which will approximate $25,000.

Refinery Site Secured

LETHBRIDGE, Alberta, Apr. 11.—Floyd Huff, formerly connected with the Regal Oil & Refining Co., of Calgary, has purchased land here for a refinery site.

Grogan Buys Crystal Refinery

SHREVEPORT, La., Apr. 13.—Rodessa Oil & Refining Corp. has purchased the 5,000-bbl. refinery at Cedar Grove, La., formerly owned by the Crystal Oil Refining Corp. The plant has been operated under lease by Martin J. Grogan and associates since September of last year and in forming the Rodessa Oil & Refining Corp., of which Mr. Grogan is president, it has been found advisable for Mr. Grogan to exercise the option to buy the properties and bring them under the Rodessa name.

Although approximately $50,000 worth of general improvements were made to the Crystal plant in the past year, the acquisition by Rodessa Oil calls for the addition of cracking equipment and possibly some reforming equipment. In addition to the refinery the company has purchased 95 acres of land adjacent to the refinery on which is located 480,000 bbls. of steel storage.

Mr. Grogan also holds an interest in the Trio Refining Co., which operates a 1,500-bbl. plant at Arp, Tex., and the Hurricane Petroleum Corp., which operates plants at Overton, Tex., and Haughton, La.

Michigan Refinery Construction

MUSKEGON, Mich., April 13.—Leonard Refineries, Inc., a newly formed Michigan corporation, will be ready to go on stream within a week with the skimming plant of its new $600,000 refinery in Alma, Mich.

Installation of the three new independent cracking and reforming units will be completed within three months by the Leonard company, McClanahan Refineries, Inc., at St. Louis and Old Dutch Refining Co. at Muskegon. The latter two units, the first a Dubbs unit and the other a T.V.P. vapor phase installation, already have been started.

McClanahan Refineries, Inc. and Leonard Refineries, Inc. are considering a joint marketing organization. The former with McClanahan Oil Co. also may seek listing on the New York stock exchange.

Gasoline Price Investigation by Department of Justice

WASHINGTON, D. C., Apr. 13.—Attorney General Homer Cummings has announced a special federal grand jury will be called in the near future to consider investigation of gasoline prices.

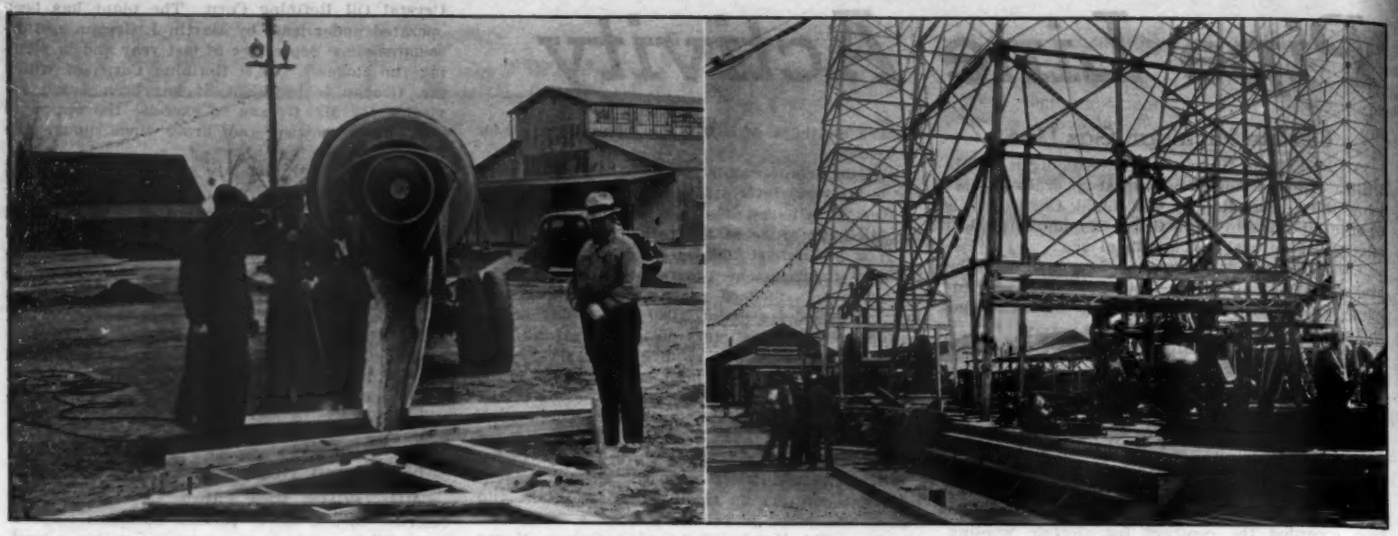
It is believed the only evidence in shape for presentation is that before the Michigan legislative committee, which was presented to the department by the committee with request for action. The investigation, originally, was started because of complaints from independent oil jobbers, led by Paul Hadlick, of the National Oil Marketers Association, who alleged independent jobbers were being driven out of business.

Since this complaint was forwarded to the department of justice, an intensive investigation has been undertaken by the division of investigation, in conjunction with the antitrust division. It is known efforts of the industry stabilize refinery and tankcar prices have been scrutinized.

The department has detailed agents to investigate files and records, as well as individuals in New York, Chicago, Tulsa, Oklahoma City and Texas. The most recent area looked over was East Texas and Louisiana.

WELDING LINE LAID ALONG CANAL THROUGH MARSHES TO LAFITTE FIELD

Welding equipment and dope pots and material for coating are towed along canal at right on barges, Coastal Louisiana



Preparing for the Oil Industry Exhibition at Tulsa, May 16-23

New, Greater Display Announced for International Petroleum Exposition

The keynote of the ninth International Petroleum Exposition, which will be held in Tulsa May 16 to 23, will be larger exhibits, more electric driven equipment, better illustrated displays, and beautified grounds.

As to the larger exhibits, General Manager W. B. Way cites one exhibitor who will have, among other things, a piece of equipment weighing more than 20 tons.

There are five huge exhibit buildings containing 476 booths. At 10-foot width per booth, display space extends approximately a mile. Huge backboards are being worked out on an elaborate scale. Extra flooring is being put in some places. Electrical, water and gas connections are being hooked up to the individual booths in accordance with instructions from the nearly 500 different exhibitors.

"You see," explained Manager Way in one of the electric power box rooms, "we are having to double our power outlets on the 440, 220 and 110-volt lines. Exhibitors are planning on having more electrically operated equipment. Then, too, the industry is fast becoming electrified."

The outside exhibit space contains 100,000 square feet. Way down in the back of the lot, between the Refiners and Marketers Building and the Scientific and Technical Building there is a space about 25 by 30 feet which has not yet been sold, but you can't even get standing room elsewhere, General Manager Way said. He qualified that by stating there was one booth out of the 476 left.

Never before has the space been sold out so rapidly, he said. To illustrate how long the exhibitors have been planning their exhibits, he said approximately 92 per cent of the space has been sold since last September and October.

"This means," he pointed out, "that there will be better displays." He produced a silver print design of one exhibit which is being worked up by a Chicago display firm for one of the larger exhibitors. He said dozens of exhibitors he knows of are having expert designers plan their displays.

"I think that the World's Fair at Chicago has had a lot to do with the improving of exhibits, making them more beautiful, and actually putting in working exhibits," he said.

"This means that the exposition itself is having to dress up the plant a bit. Each of the five exhibit buildings will be lined with sateen on the back walls. The rough corrugated walls will no longer show."

Every building on the place will be repainted both inside and out before the opening.

On Drake drive, the main street, there is intensive building activity. Conspicuous is a new building with unusual architectural curves and design.

"Yes," said Manager Way, "this is the first building to be built of two-story proportions. I'm told that it will cost between $15,000 and $20,000 when completed. Perhaps the exhibitor intends to be a permanent customer of the exposition."

Back of the building were a freight car and two trucks, one with a crane and the other with a winch, helping to extricate a shipment of heavy equipment which will be exhibited in the big building.

Mr. Way said this year is the first in the history of the show that equipment has been unloaded on the grounds so far in advance of the opening. A new derrick was going up. One firm will exhibit a combination rotary driven by diesel power, steam and electricity. There are also two or three more outfits scheduled to actually be "making hole" on the grounds.

Chromium plated furniture will dress up a number of the booths. "This is the first time we have had a call for such fine furniture," said Mr. Way.

In the Scientific and Technical Building there will be a working model of a Pennsylvania oil field taking up more than 400 square feet of space. It is being shipped from that state.

One exhibitor will show the application of the photo-electric cell to the oil industry. One member of the committee spent several weeks in Chicago and other points securing this exhibit. Then there will be a glass-blowing exhibit where workmen will actually make glass instruments.

The Inventors Congress is being worked up by B. W. Logue of the Texas Co. Interesting new gadgets and inventions, such as new pumping units, "fool-proof" power safety connect and disconnect, valve for working barrel, "I" beam making use of curved surfaces for added strength, polished rod grip, and pipe line expansion joint will be on display. A road oil testing laboratory is also planned.

A building has been set aside to house old model exhibits. The exposition is starting an oil museum to contain models of methods and equipment used in producing, refining, transportation and marketing divisions. Manager Way expects it will take 5 to 10 years to build this up, but a start is being made at the coming show.

May Delay Compact Meeting

Governors E. W. Marland of Oklahoma and James V. Allred of Texas, have laid plans for an interstate meeting of oil officials, highway commissions and tax authorities at Dallas September 28.

Governor Marland has written governors of all oil states asking if they would consent to postponement of the next regular Interstate Oil Compact Commission session from July 31 to Sepber 28.

If the oil states governors agree, Governor Marland said Governor Allred likely would issue invitations to the highway commissioners and tax commissioners of the same states to hold a meeting in conjunction for the purpose of discussing interstate problems.

Should the planned meeting materialize, Governor Marland said September 28 probably would be declared "Oklahoma Day" at the Texas Centennial Exposition.

Crude Stocks

Grade of crude oil—	March 21	March 28
Pennsylvania Grade	4,161,000	4,231,000
Other Appalachian	832,000	860,000
Lima-N.E. Indiana-Michigan	1,186,000	1,214,000
Illinois-S.W. Indiana	10,439,000	10,450,000
North Louisiana and Arkansas	9,701,000	9,611,000
West Texas and S.E. N. Mex.	28,787,000	28,949,000
East Texas	20,445,000	21,246,000
Other Mid-Continent	127,229,000	127,237,000
Gulf Coast	25,913,000	25,779,000
Rocky Mountain	26,545,000	26,598,000
California	35,222,000	35,439,000
Foreign	3,390,000	2,925,000
Total reported weekly	293,800,000	294,569,000
Estimate of unreported stocks	16,550,000	16,600,000
Total stocks	310,350,000	311,169,000

A HOT TIP ON A SURE WINNER

SOMETIMES it's pretty hard to pick the Derby winner—and last-minute upsets can always occur. But for the past eight years there has been no change in the position of another famous "Kentucky product." Every year since the start, Tube-Turns★ have been the odds-on favorites *and the winners* in the race for welding-fitting leadership in America . . . Tube-Turns, Incorporated, Herald-Post Building, Louisville, Kentucky.

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Petroleum America's Greatest Industry; Achievements Surpass Shortcomings

By W. R. BOYD, Jr.
Executive Vice President A.P.I.*

Contemplation of the services rendered by the petroleum industry to the people of this nation, and of every other civilized nation on the globe, leads inevitably to the conviction that here is a gigantic industrial undertaking whose contributions to human welfare are so fundamental and so universal as to make it one of the most, if not actually the most, essential of all industries.

For an oil man to express that opinion before oil men may seem a bit surprising. While frank examination of defects is a sign of strength rather than a confession of weakness, we oil men, perhaps, have made it too much a habit to wash our industry's dirty linen in public. One of our favorite questions has been: "What is wrong with the petroleum industry?" To make matters worse, we usually seek the answer from those least qualified to give it. We constantly expound, and simultaneously attempt to explain, the industry's supposed shortcomings. Actually, very little is wrong with the petroleum industry. A great deal is decidedly right. This industry's record of achievement is so outstanding it should be our pride and our boast.

I fear that we, as oil men, and the general public, as chief beneficiary, fail to appreciate this industry's services because of their very magnitude. Do you realize that never since the inception of this industry has this nation been inconvenienced by a serious or prolonged shortage of petroleum and its products? Never in the past three-quarters of a century has there been a protracted interruption in the downward trend of prices nor in the upward trend of quality of petroleum products. Never has this industry failed within a reasonable period to meet and to satisfy new or changed demands. Never has this industry ceased its endeavors first, to assure this nation of an adequate supply of petroleum, and, second, to give this nation improved products and efficient service at reasonable prices. The history of this industry is the story of man's conquest of natural forces, of his successful attempt to tap nature's storehouse, and of his ability to transform raw material into consumption goods.

Serving Essential Needs

Probably there are those who will challenge such statements. To their minds, this industry merely has had the luck to discover a treasure trove, has staked a claim, and has sold to the people of these United States the natural resources that were the people's own property. Those who would hold that opinion forget the pioneering and the prospecting that has been done by this industry at its own risk and the tremendous financial losses that have been absorbed. They forget that this industry was forced to develop the means, the methods, even the tools by which petroleum resources are reduced to possession and to use. They forget the service this industry has continued to render throughout the years of meagre financial return. They talk volubly of "black gold," but overlook the brains and the brawn and the human toil that have gone into making this industry what it is today.

The very fact that you technical and operating men from the oil fields of the Southwest are here to discuss your mutual problems is indicative of the desire and of the constant striving of this industry to improve its service, to increase its efficiency, and to reduce waste and loss. Your discussions prove that you are not content to let well enough alone; are not satisfied with present operating conditions and equipment. Consciously or unconsciously, you are here working for better service to the people of this country and of the world; you are working for greater efficiency; you are making a practical effort for petroleum conservation because you are striving to lift to the surface every recoverable drop of oil. That is conservation, and that is service.

The pioneers of this industry laid a broad foundation for a business which should meet essential human needs. Most of them have passed on to the rewards which await men of their kind, but their pioneering spirit still is very much in evidence. Time and again when flood tides of crude and refined products have threatened to submerge this industry in chaos and bankruptcy, the men of this industry, with a resourcefulness which recognized no obstacle as insurmountable, have mastered the situation and have triumphed over almost hopeless adversity.

Within my day, the American Petroleum Institute, and other associations of oil men, have served as industrial clinics for all those engaged in the business who wanted to be helpful to themselves. These clinics have afforded full and free opportunity for joint ascertainment of causes, comprehensive observation of the effects, and satisfactory decision as to the proper remedy for industrial ills. These clinics and forums have been educational. They have been conducted in conformity with law. They have been of honorable origin and honorably conducted. The pitiless glare of publicity has shone upon them, and the public has been fully informed of every development. The results have demonstrated that this industry is lacking neither in business ability nor acumen, and that usually it is unwise to permit of any inexpert interference with the shoemaker's business of making shoes.

Those who charge this industry with mismanagement or profiteering speak without authoritative knowledge. This industry is well managed and the facts will show that it has been managed from the standpoint of great service rather than great profits. We can study the 12 years 1921 through 1932 and find that with an investment averaging $10,000,000,000 the industry's net earnings have been approximately $2,000,000,000. In three of those years the industry as a whole showed a deficit. In its best year the industry earned 4.96 per cent; its average earnings over the 12 years were only 1.66 per cent.

It is estimated that the industry's present investment is roundly $12,000,000,000. It is owned by several million holders of its stocks and bonds. No industry's securities are more widely held, and none present less opportunity for concentration of ownership or control.

This industry affords employment for more than 1,000,000 men and women, to whom it pays in wages and salaries about $1,250,000,000 annually. Many other industries owe their existence, in whole or in part, and their stockholders and employes owe their income, to the rapid development and diversified activities of the petroleum industry. Since 1925, some 24 oil companies engaged in all branches of this industry have purchased from other industries diversified supplies and materials costing more than $7,000,000,000.

The petroleum industry's employes engaged in production and drilling activities are the fourth highest paid among all workers in non-manufacturing undertakings. Petroleum refinery wages average 34 per cent higher than wages paid in manufacturing enterprises. Filling station employes receive higher pay than the average of retail sales workers. Translated into purchasing power, the wages of this industry's employes put them in a position even better than that of the 1929 "Good Times," yet generally they work much shorter hours.

The business activities of this industry are of widespread benefit. More than 325,000 producing wells are owned and operated in 22 states. Refined petroleum products are made in some 638 refineries operated in 35 states. The industry owns and operates more than 112,000 miles of oil pipe line, 150,000 railroad tankcars, more than 130,000 motor tank trucks, enough tank ships to comprise about one-fourth of American merchant marine tonnage, and a large number of canal, river, and lake boats and barges. There is scarcely a community in the United States where petroleum fuels and lubricants are not available to motor vehicles, and the industry's 300,000 retail sales outlets have become symbols of service.

Monument to Progress

The rapid growth of this industry is a monument to the incredibly rapid development of this age of mechanical power. Never has there been a swifter transition, nor one of comparable importance to mankind. Yet, but for the proper functioning of the petroleum industry as a service adjunct to all forms and uses of mechanical power, this development would have been impossible.

This industry did not attain its present status, nor did it develop current abilities to render effective service, over night. This industry has gone through all the processes of experimentation, or trial and error, which have characterized the development of every other great and growing industry. Admittedly it has the defects common to so many large-scale industrial undertakings, but none that cannot in due course, under private initiative and private operation, be corrected. The fact that these defects are recognized is virtually a guarantee that the men of genius and ability in this industry will appraise them as undesirable and will set themselves resolutely and determinedly to eliminate them.

Perhaps I should say the industry will eliminate these defects if it be permitted to do so. There are still those who would, in the name of humanity, social welfare, more abundant life, or some other alibi, force the shoemaker to apply their theories to the business of making shoes. In this industry such efforts usually are based upon periodic lamentations over threatened exhaustion of the nation's petroleum resources. Although, so far, the tears for departed reserves have been shed in vain, they have inspired the usual flood of panaceas. Most persistent and conspicuous among them is the advocacy of federal control.

Permit me to point out that taxation and needless regulation are handicaps upon any industrial operation. Unless it have public understanding and support no industry can hope to withstand them.

As I see it, our form of government is supposed to accord to its citizens the right to engage in fair and open industrial competition. Spurred by the incentive to profit, citizens are to enjoy the widest freedom to develop and to improve industrial facilities and opportunities. I think it has been and is still the American conception that individual initiative, free competition, and the profit incentive are influences contributing greatly to industrial development in this country; that government policy so should be formulated as to foster and promote private enterprise. Certainly the

*Before A.P.I. Division of Production, Southwestern District, Shreveport, La.

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major purpose of the antitrust laws was to prevent, not to impose, restraints upon the free functioning of the competitive system. In this way it was hoped to preserve equality of opportunity for all competitive enterprise, and at the same time to protect the public interest against the consequences of monopoly. If it be a function of our government to protect and to promote the economic activities of its citizens, rather than to supplant or destroy them, then have we not a right to expect that government itself shall not become a monopoly? Have we not a right to expect, also, that the federal government shall not through so-called regulation processes, force an industry like ours to adopt the status of a public utility, or by any other means compel it to become monopolistic either in fact or in effect?

No Indication of Shortage

Now a word about petroleum reserves and the recurring scares concerning exhaustion. To the best of this industry's knowledge and belief, proven reserves exceed 12,000,000,000 bbls. Their magnitude, and the extent of the added reserve that inevitably will be created as new discoveries are made, are such as to assure every consumer of petroleum products that there is not the slightest indication of any imminent danger of a petroleum shortage. The millions of users of internal combustion engines likewise may be assured there are supplementary supplies of motor fuel of almost unlimited quantities which economically can be obtained from such substitutes for well oil as bituminous coal and oil shale. And the motorist should not be stampeded by the predictions of alarmists into believing he should trade his flivver for a horse and buggy for fear he cannot obtain sufficient fuel to keep the old bus rolling!

Our enormous proven reserves of oil, and the virtually endless supply of substitute sources of motor fuel and other products, in effect are being extended by the remarkable progress made by the producing branch of this industry in improving the technique of finding and recovering oil. Geology and geophysics have increased the possibility of locating new sources. Reservoir energy is being conserved and properly utilized. Development of deeper and faster drilling has been accompanied by greater thoroughness, better methods of completing wells and rapid improvement in the design and manufacture of equipment. There is virtually no end to the evidence of progress in finding, recovering and conserving crude oil.

Unremitting scientific research and practical experimentation in refining likewise have served the public interest by multiplying the output of refined products, widening their field of usefulness, reducing their cost, and assuring adequate supply and satisfactory quality. Refiners effectively are conserving petroleum reserves by reducing operating losses, increasing yields of useful products, making operations flexible, developing new by-products, and by cooperating with other industries in increasing the efficiency of petroleum products.

The prophets of exhaustion of this nation's petroleum reserves apparently overlook the fact that this industry is spending upwards of $12,000,000 annually for scientific research which occupies the full time of some 3,200 trained research workers. In addition to these, there are several thousand technically trained men such as geologists, geophysicists, civil, mechanical, electrical, chemical and production engineers and chemists engaged in the various branches of the industry. The unbiased observer of this industry will find that it is making progress in finding new supplies, is moving toward stabilized conditions, is reducing waste, is steadily lowering the costs of production and distribution. I hope that the unbiased observer will discover also that this industry is entitled to fair and reasonable returns on its investment and commensurate with the service it renders. And I hope that his observations will enable him to predict that in the not far distant future this industry will receive from the American public that confidence which springs from complete understanding.

Versatility, adaptability, economy and service have guided this industry's progress under the urge of competition. There has been, and should continue to be, relative freedom from government regulation and control except as this policy or authority, through necessity and in the public interest, is applied fairly equally to all industries.

What I have just said in no ways contradicts my belief that the oil-producing states should, by appropriate control measures, continue to prevent waste, promote conservation and protect property rights. Some states are making sincere efforts to these ends. Their regulatory agencies, through sympathetic understanding of the industry's problems, have contributed in large measure to the effectiveness of local and general conservation programs.

Some states having large oil production have entered into an interstate oil compact to prevent the waste of oil and gas. That compact permits state governments to work together in a common cause, for a common purpose. Because all governmental agencies at interest have their say and play their part, the compact is the democratic and constitutional way to seek the solution of the problem of oil conservation. It is hoped that this compact, to which six oil-producing states are now signatory, will be continued and that the governments of other states where oil is produced will, by legislative action, become parties to the agreement.

There is no need to snap the whip of federal control over the back of this industry. It is only natural that the petroleum industry should make earnest and practical efforts to insure conservation of the product upon which its industrial life depends. Those who say this industry is not conservation-minded, or is intentionally profligate with the nation's oil reserves, know not whereof they speak. This industry is committed to conservation if for no other reason than self-preservation.

I know there may be those who will challenge those statements also. They will contend that, because petroleum resources are believed to be depleting reserves, this industry must be subjected to federal regulation and control bordering upon governmental operation. I fear that all too frequently this attitude stems from motives far removed from conservation of the nation's resources. These repeated suggestions that the federal government ride rough shod over the rights of the states, the industry, and the citizens smack of bureaucracy, if not of autocracy; of political expediency, not public welfare. Important as may be the conservation of natural resources, the preservation of civic rights is paramount.

I like to think that the petroleum industry today is nearer rationalization, nearer stabilization, and generally in a better condition, than at any time in recent years. It is aware of the need for practical conservation. It has, in the last decade, learned the folly and futility of "going wild" on production, either of crude or refined products. Generally speaking, the industry is in a cooperative mood. Given the maximum of opportunity and the minimum of restriction, it can, and will, work out its own salvation.

Aside from the threat of governmental control, there is another problem which in the light of the future welfare of government, industry and citizens alike should be considered. That is taxation. The cost of government, federal, state and local, is growing with amazing and discouraging rapidity. The cumulative tax bill is so terrifying as to arouse fears of causing a chronic epidemic of pernicious anemia of the pocketbook.

This industry has intimate knowledge of the tax situation, and of its adverse effects. It is instrumental in directing to government treasuries each year more than 11 per cent of all revenues collected. The industry itself is a substantial contributor. It acts as the unpaid collector of gasoline taxes, which comprise three-quarters of the billion dollar annual petroleum tax bill. The industry is in the position of seeing government derive from taxes on its principal income product, gasoline, far more revenue than it is itself able to make by manufacturing and marketing this highly essential commodity. In terms of crude oil, the total tax bill is equal to $1.14 for each barrel produced. Furthermore, the petroleum tax bill is drawing nearer and nearer to the sum total the industry pays in wages and salaries. The industry has been commended for maintaining a high wage rate, but taxes equivalent to $1,000 per year per worker are not conducive to confidence in the future.

It is true that a large proportion of the tax revenues collected by, through or from this industry are expended upon highways, from the use of which the industry is supposed to derive business. Unfortunately, more and more of the revenue is being used for general purposes, less and less for roads.

Many states are finding it possible to make revenues from reasonable taxes go far in building roads by utilizing the low-cost road materials produced by this industry. It would seem only fair that the industry whose products are so heavily taxed should enjoy this market.

The industry is not objecting to paying its fair share of the cost of government. However, it believes that the constant increase in the cost of government, with resulting increases in taxes paid by its customers and itself, is neither in the public interest, nor a productive use of the citizens' money. It tends both to impoverish the citizenry and to make the tax collector a serious competitor of industry for the trade dollar.

I have suggested that the petroleum industry is in a cooperative mood. I think that one evidence of that fact is the enormous increase in the activities of the American Petroleum Institute. This organization, long known as the "oil man's forum," is coming to be as much the medium for cooperative action as for discussion.

The times demand united action. Business no longer is a game of solitaire. Modern developments and changes come too rapidly for the individual to grasp. To survive, he must become a cooperative part of his industry. Modern problems, particularly the relationship between the business man and his government, have become too complicated for the individual even to understand. This solution demands the comprehensive wisdom of many minds working together. Modern business risks, including taxation, are too great for the individual to weather. He must be part of the united force which only cooperation with his fellows, competitors though they may be, can create.

Times Demand United Action

The hundreds of thousands of men like you, who comprise the personnel of the petroleum industry, have achieved and have won their rewads through unending toil and honest sweat. That is typical of the industry, and we would not want it to be otherwise. This industry has written a record of which it can be proud, and for which it can ask, because it deserves public commendation. Its contribution to national and to public welfare justifies its recognition as America's greatest industry.

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OBITUARY

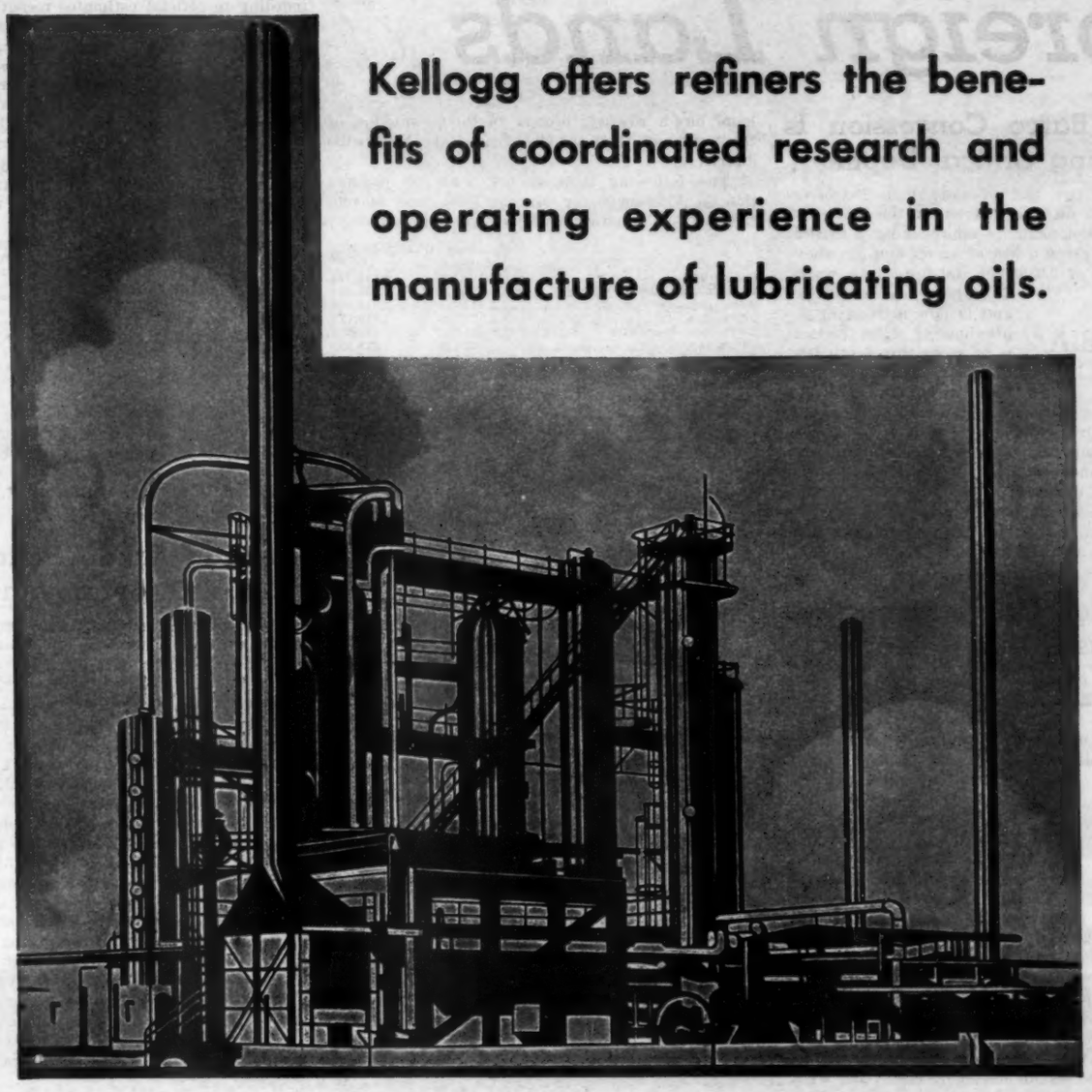
ROBERT JOSEPH KEOWN, 66, former vice president and treasurer, Union Oil Co. of California, died at the Pasadena Hospital recently. Born in Toronto, Canada, he had resided in California for 40 years. He was identified with the Standard Oil Co. prior to his affiliation with Union Oil, which he served for 25 years until his retirement in 1931.

GEORGE H. BRADLEY, 54, operator in the Wichita Falls, Tex., area since about 1919, died recently, the result of an infection from a slight scratch on his hand.

GEORGE M. BELL, 52, Calgary, prominent in the Alberta oil industry, died recently. He was actively interested in the Turner Valley development and held directorates in a number of leading companies.

MILLARD T. ROUNDTREE, 34, production superintendent, Petroleum Producers Co., Olney, Tex., died recently from pneumonia.

B. L. SCHOOLEY, 72, formerly a refiner and producer in the Petrolia, Ontario, fields, died in January at Brisbane, Australia, where he was for many years connected with the management of the Intercolonial Boring Co.



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Oil News from Foreign Lands

Test in Barco Concession Is Nearing Critical Depth

The No. 2 Oro test of Colombian Petroleum Co. in the Rio de Oro district of the Barco oil concession in Colombia, is approaching a critical depth. It was given a test of an oil and gas showing at a depth of 6,318 feet and tested salt water. It is being carried deeper and is now drilling at approximately 6,368 feet. It is at about this depth that the productive horizons found at shallow depths in the La Petrolea district are expected to be uncovered. No. 3 Oro, three-quarters of a mile from No. 2, is drilling below 1,238 feet. At the south end of the concession, No. 11 Petrolea, on the south Petrolea dome, is rigging up. La Petrolea No. 8-A has been completed for an initial production of 720 bbls. daily at a depth of 675 feet. The oil tested 46.7 A.P.I. gravity.

COLOMBIA

Venezuelan Crude Production Increased During March

Venezuelan crude oil production in March is estimated at 12,986,073 bbls., compared with 11,810,919 bbls. in March, 1935, an increase of 1,175,154 bbls., or 9.9 per cent. Daily average output was 418,905 bbls., against 380,997 bbls. in March of last year. In March the Maracaibo Lake fields produced 10,739,392 bbls., or 82 per cent of the total. The eastern Venezuelan field, Quiriquire, produced 1,921,536 bbls., or 15 per cent of the total. In March a year ago the Lake fields produced 85 per cent and the Quiriquire field 11 per cent of the country's total oil output.

VENEZUELA

The Falcon oil fields, Cumarebo and El Mene, accounted for only 325,145 bbls. of crude in March of this year and 408,411 bbls. in March, 1935.

The relative position of the leading oil-producing companies remained the same in March of the current year as in March of last year, with Lago Petroleum Corp., subsidiary of the Pan American Foreign Corp. (which in turn is controlled by the Standard Oil Co. of New Jersey), leading, with an output of 4,149,841 bbls., or a daily average of 133,865 bbls. Another Jersey subsidiary, Creole Petroleum Corp., which operates in Venezuela under the name of the Standard Oil Co. of Venezuela, produced 2,551,231 bbls., ranking third.

The second largest producing company was Venezuelan Oil Concessions, Ltd., subsidiary of the Royal Dutch-Shell group, with an output of 3,397,445 bbls.

The three companies mentioned all showed increases over March a year ago, while the remaining organizations all showed small decreases in output.

Wildcat drilling now under way in Venezuela is confined largely to the state of Falcon and eastern Venezuela, and mostly to the latter, where both Standard of Venezuela and the Venezuela Gulf Oil Co. are drilling in the states of Monogas and Anzoategui.

It is understood that several oil companies have been doing considerable geophysical work in eastern Venezuela, embracing the states of Amacuro, Monogas, Anzoategui, Guarico, Apure and Zamora. In Apure and Zamora the Venezuelan Petroleum Co., subsidiary of Consolidated Oil Corp., has extensive holdings and has been at work preparatory to drilling. Venezuela Petroleum has a royalty interest in the production of the Venezuela Gulf Oil Co. in the Lake Maracaibo district.

The following table shows crude oil production in Venezuela for March, 1936, and March, 1935, by fields and companies (figures in barrels):

	March	
Field—	1936	1935
Lagunillas	7,324,227	6,265,149
LaRosa-Ambrosia	1,848,735	1,825,371
Mene Grande	1,011,685	1,380,500
Quiriquire	1,921,536	1,356,173
Tarra-Los Manueles	427,335	432,880
Cumarebo	262,145	328,111
Concepcion	169,275	125,500
El Mene	63,000	80,300
La Paz	18,135	16,930
Total	12,986,073	11,810,919
Daily average	418,905	380,997
Company—		
Lago Petroleum Corp.	4,149,841	3,475,347
Venezuelan Oil Concessions, Ltd.	3,397,445	2,960,630
Standard of Venezuela (Creole)	2,551,231	2,004,234
Venezuela Gulf Oil Co.	1,320,000	1,395,000
Caribbean Petroleum Co., Ltd.	1,011,685	1,380,500
Colon Oil Corp.	427,335	432,880
North Venezuela Pet. Co., Ltd.	65,536	82,028
British Controlled Oilfields	63,000	80,300
Total	12,986,073	11,810,919

Venezuela will hold its presidential election on April 19. This is the first election since the death of President Juan Vicente Gomez late in 1935.

Japanese Petroleum Laws Are Again Protested

It is understood American, British and Dutch oil companies which have been supplying Japan with the bulk of its petroleum requirements have renewed protests through their respective governments over the new Japanese petroleum regulations which are to become effective on April 15. The regulations include the provision that importing companies maintain stocks of oil on hand within Japanese territory equal to one year's normal imports. Japan is supplied with oil mainly from fields in California and the Dutch East Indies.

JAPAN

Oil Importations into Germany Increased Over 21 Per Cent

Imports of crude oil and refined petroleum products into Germany in 1935 increased 21.3 per cent over 1934. They totaled 3,826,234 tons, against 3,154,610 tons in 1934, a gain of 671,624 tons, according to official estimates recently made public. While imports of gasoline in 1935 were the largest single item, aggregating 1,224,344 tons, those of crude oil showed the largest percentage of increase compared with 1934, amounting to 515,298 tons, against 276,717, a gain of 238,581 tons, or approximately 86 per cent.

GERMANY

German imports of crude oil and products in 1935 and 1934 are shown in the following table (in metric tons):

	1935	1934
Crude oil	515,298	276,717
Gasoline	1,224,344	1,158,385
Kerosene	75,287	98,261
Gas oil	882,993	639,916
Lubricating oil	437,421	322,033
Fuel oil	326,316	316,180
Residuals	305,206	282,689
Petroleum asphalt	59,369	60,429
Total	3,826,234	3,154,610

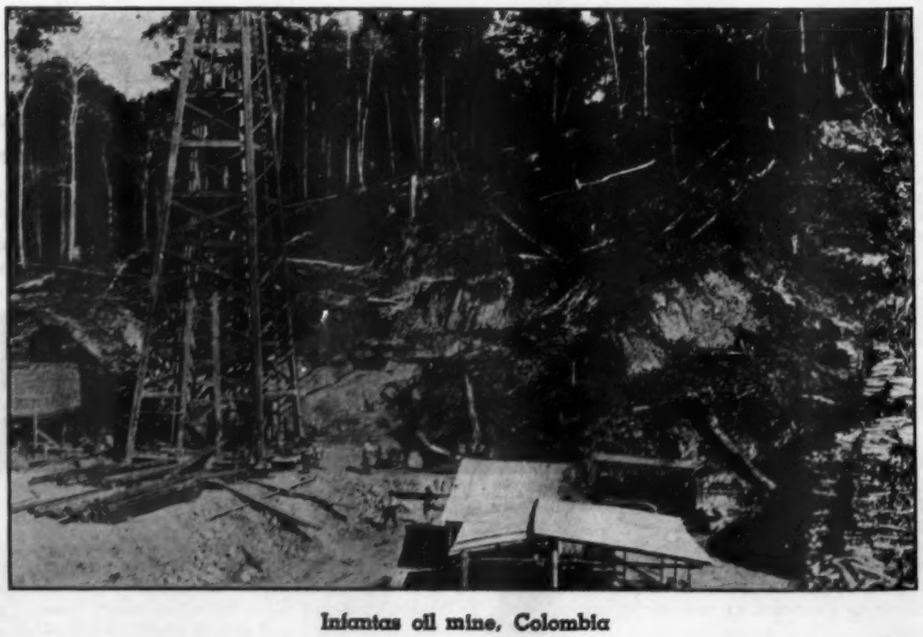
Imports, except asphalt, increased in 1935. The most substantial gains were registered by crude, gasoline, gas oil and lubricating oils. In the official report, the increased importation of gas oil is attributed to general improvement.

Mexican Crude Petroleum Is Being Maintained

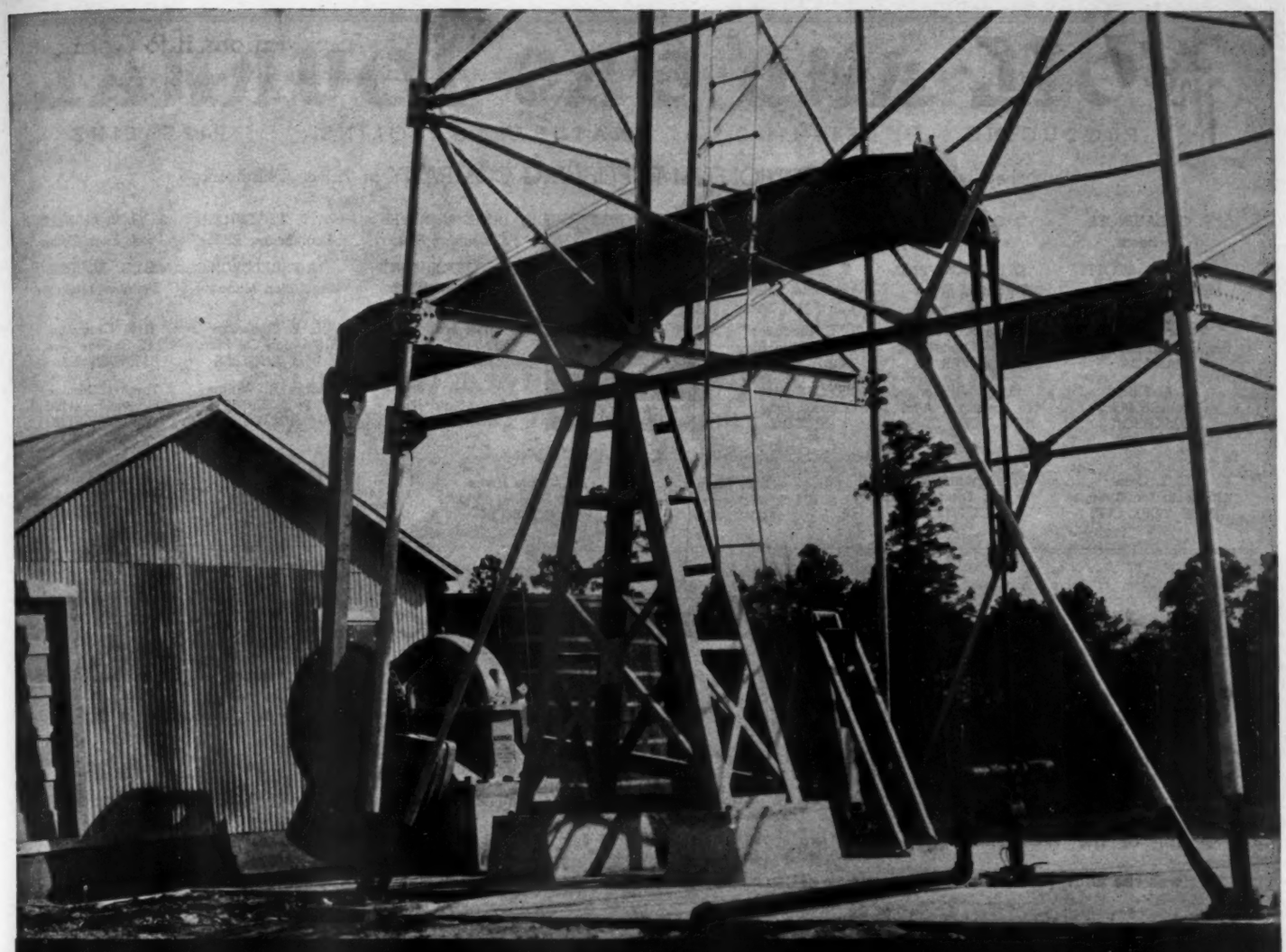
Despite operating difficulties centering largely in labor disputes, Mexican crude oil production is being maintained. Official reports of the government covering the first two months, in fact, show a substantial increase over the same period in 1935. The January production totaled 3,377,302 bbls. and February 3,285,966 bbls. or a total of 6,663,268 bbls. for the two months. This daily average of 111,065 bbls. compares with a 91,746-bbl. average for the first two months of 1935. The value of the crude jumped from 18,977,939 pesos the first two months of 1935 to 22,608,890 pesos for the same period this year.

MEXICO

While the bulk of the crude oil and refinery output is exported, reports covering the first two months indicate that the domestic demand for several products will increase this year. The extension of improved highways system has brought more and more tourists into Mexico and this has been reflected over the past three years in a steady gain in motor fuel consumption.



Infantas oil mine, Colombia



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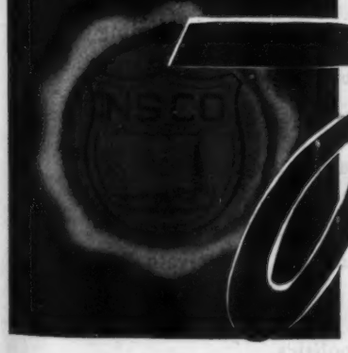

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Not Merely Politics

It is significant of the difficulty men engrossed in their everyday industrial or business affairs have in keeping up with legislation affecting their interests that the most discussed subject after the annual meeting of the Western Petroleum Refiners Association was the analysis of the social security act presented.

Unemployment insurance and old age pensions were familiar as headlines but little else. Analysis of the details was appalling. The intricate regimentation of individuals, businesses and industries, required for the administration of the act, the prospective billions of increases in taxes, and the piling up of a $47,000,000,000 reserve by 1980, calling for $1,400,000 in annual interest added to the $3,500,000,000 levied that year in payroll taxes, all these were a revelation.

There is no comfort in the thought that year is far away. Within a year each employer and employe covered by the legislation will be forced to pay a one per cent payroll tax on each wage up to $3,000 a year or 2 per cent combined. By 1940 it will be 2 per cent each and by 1949 3 per cent each, or 6 per cent together.

This is an additional income tax levied on the employe and employer although termed an excise tax in the employer's case. It involves card-indexing half the working population of the country, keeping tab on their pay fluctuations and movements, and imposes a staggering burden of bookkeeping and record-filing on all affected. It will not only reduce earnings but when the tax ultimately gravitates to the consumer it will increase costs.

Those who have studied the legislation find that it far exceeds the utmost possibilities of federal regimentation in the N.R.A.

Most dangerous, however, is the creation of that colossal reserve which dwarfs even our present national debt. As that reserve grows above the annual amount required for payments of pensions what will prevent a clamor for an increase in the pensions or a lowering of the age limit, and with 25,000,000 voters directly interested what is congress likely to do?

Or, since to avoid risk of constitutional challenge, the tax is not specifically set aside for these pensions, can congress be expected to refrain from spending that surplus for current needs when taxpayers complain in an election year?

The whole scheme was rushed through a complaisant congress without any general understanding by the public of the meaning or purpose of the legislation or of its operations and effects. The average employe is as much in the dark as the average employer.

It is a sharp reminder that with government interfering more and more in business and private life what is done by congress and the legislatures cannot safely be dismissed as merely politics.

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The RODESSA FIELD

By JOHN S. IVY
United Gas Public Service Co.

A. P. I. —A discussion of the structure, formations underlying the Rodessa field and drilling methods used. Delivered at the Southwest District meeting.

The Rodessa field was discovered August 3, 1930, by the completion of the R. W. Norton No. 1 Hill as a gas well at a total depth of 5,505 feet. Previously numerous wells had been drilled on the structure by other operators but none reached a sufficient depth to penetrate the basal anhydrite reservoirs which had been productive of oil and gas at Pine Island and Cotton Valley, and gas at Sligo, Sugar Creek and Bethany.

After the completion of the discovery well, the field was developed for gas until July 7, 1935, when the discovery oil well was completed by the United Gas Public Service Co. on the I. L. Young lease at a total depth of 6,048 feet. At that time a total of 20 gas wells had been drilled and completed in the field, proving its linear extent for about 6 miles. As of April 1, 1936, 120 oil wells had been completed in the field and approximately 4,689,000 bbls. of oil produced. As of the same date there were about 62 active locations. At the present time about 6,500 acres may be regarded as proven for oil and gas production and an additional 3,500 acres for the production of gas. Prior to the discovery of gas in the horizon immediately underlying the anhydrite the Rodessa field was generally not believed to be potential for production due to the absence of accumulation of either oil or gas in the reservoirs of the Upper Cretaceous formations such as the Nacatoch, Chalk, and the Buckrange, which formations had been productive in the closely adjacent Caddo field and Pine Island field, as well as in other fields of northern Louisiana and southern Arkansas.

Plate 1—Map of oil and gas fields in southern Arkansas, East Texas and Louisiana

A structure map of the field is shown in Plate 2. The accumulation of oil and gas occurs on the upthrown side of the Rodessa fault which extends in a northeast-southwesterly direction from southwest Arkansas through the northwesternmost corner of Louisiana, and thence into Texas. The surface trace of the fault extends through a point just north of the town of Ida, La., and to a point immediately south of the townsite of Rodessa, and continues on through Cass County into the western portion of Marion County, Texas, where it crosses the Texas & Pacific Railroad a short distance north of the town of Jefferson. The total known extent of the surface fault is approximately 40 miles. In the vicinity of Rodessa, La., this fault displaces the formations of the Comanchean series about 500 feet. The displacement in the Upper Cretaceous is only about 200 feet. The presence of comparatively minor displacements both parallel to and at angles with the major line of faulting is indicated by surface and subsurface evidence, together with seismic data. Some of these displacements are of such a minor nature that they apparently do not interrupt the continuity of the reservoirs but do affect the areal extent of the productive zones. Further development is required to determine what effect the faulting shown on the structure map in southern Cass and northern Marion Counties, Texas, will have on oil and gas accumulation.

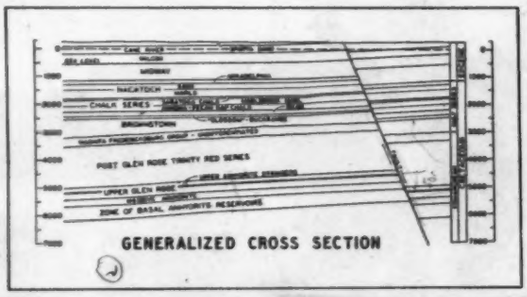


Plate 3—Generalized cross section of the Louisiana portion of the structure, approximately at right angles to major fault, with depth of formations

The contours delineate the structural attitude of the base of the massive anhydrite member of the Glen Rose formation of the Comanchean series and indicate a northern dip of about 100 feet per mile. Present data indicate a maximum closure to the north of about 500 feet.

Plate No. 3 is a generalized cross section of the Louisiana portion of the structure, approximately at right angles to the major fault. Wells located in the oil belt start in the Sparta sand formation of the Claiborne, the thickness of which varies from about 100 to about 300 feet, dependent upon both topographic and structural location. The Cane River formation, which underlies the Sparta sand, consists of brown clays and unconsolidated gray sands in the upper part and green sands and marls in the lower portion. It has a total thickness of approximately 250 feet. The Wilcox formation is next penetrated and consists primarily of gray clays and sands containing occasional lenses of sand firmly cemented with calcium carbonate which are sometimes referred to by the driller as boulders. This formation has a thickness of about 350 feet. The Midway formation underlying the Wilcox has a thickness of about 600 feet and is the basal member of the Eocene group. It consists of dark gray clays and shales with occasional sideritic lenses, usually referred to as boulders.

Immediately underlying the Midway and disconformable to it, is the Arkadelphia formation of the Upper Cretaceous. Lithologically, this formation consists of calcareous gray shale and chalk, having an approximate thickness of 150 feet. The upper portion of the Nacatoch formation which is next penetrated consists of thin beds of fossiliferous limestone interbedded with gray sand. The lower portion is composed of gray sandy marls. The total thickness of this formation is about 435 feet. Beneath the Nacatoch the bit penetrates about 50 feet of Saratoga chalk and then about 175 feet of marl and gray chalky shale, which sometimes develops into chalk. The latter is referred to as Marlbrook marl.

Below the Marlbrook marl occurs the Anonna chalk which is correlative with the Pecan Gap chalk of Texas. The formation consists of chalk and marl and has a thickness of about 275 feet.

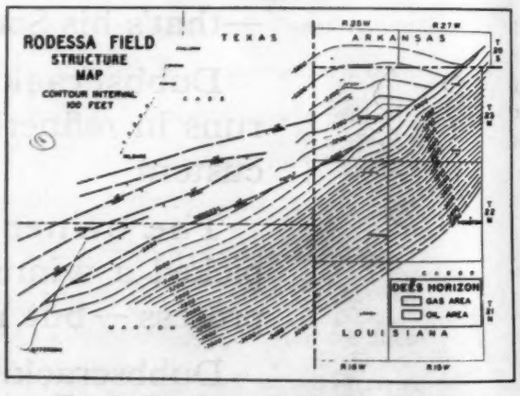
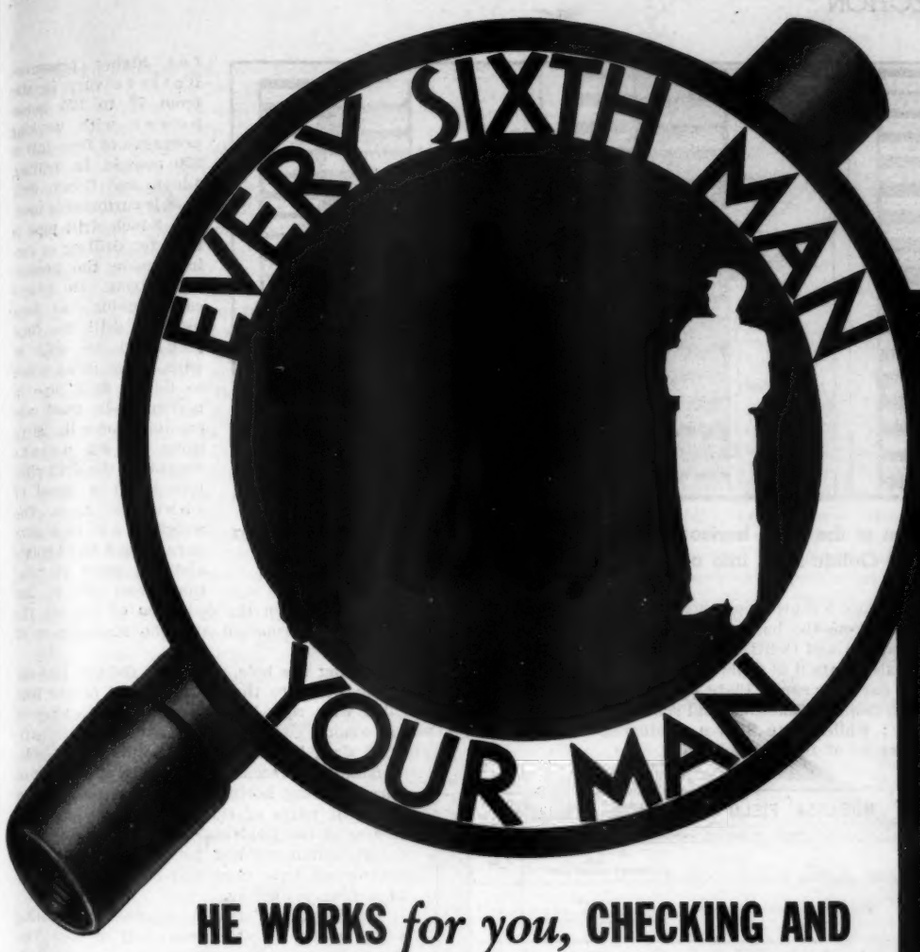


Plate 2—Structure map showing fault line

The Ozan formation occurs below the Anonna chalk and is composed of shale and sandy shales with occasional lenses of gray sand which are sometimes well cemented. Its thickness is approximately 160 feet.

The Buckrange sand, commonly referred to as the Blossom sand, comprises about 60 feet of consolidated and unconsolidated sand. The Brownston formation underlying the Buckrange is composed of about 370 feet of brown and gray shale with occasional lenses of sandy shale and sand.

The Tokio formation, which normally underlies the Brownston is apparently missing in that portion of the Rodessa field that has received development. The Woodbine formation, normally the basal member of the Upper Cretaceous, is also not present in the field unless it occurs well down on the flanks of the structure. Consequently, it is presently believed that the wells drilled adjacent to the fault pass directly from beds of Brownston age into the limestone and sandy limestones of the Washita-Fredericksburg group of the



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Comanchean series. This latter group of formations which is undifferentiated so far in the field, has a thickness of about 310 feet.

The Washita-Fredericksburg group is believed to lie unconformably upon the post Glen Rose-Trinity Red series. This series is characteristically a section of red shales interbedded with sands and limestone, which are more indurated than many of the Upper Cretaceous shales and sands. This section has a thickness of approximately 1,500 feet.

The contact between this red series and the underlying Glen Rose formation is not readily recognizable in drilling. The upper 435 feet of the Glen Rose between the red series and the top of the massive anhydrite member is composed of black shales and white fossiliferous limestones with two thin, persistent stringers of anhydrite, the first of which occurs about 165 feet below the top of the formation and the second 70 feet below the first. The uppermost anhydrite stringer is the first distinct marker upon which the depth of the lower formations may be predicted. The massive anhydrite member is nearly pure anhydrite but does contain thin beds of black shale and fossiliferous limestone. Its thickness is about 250 feet.

Illustrated in Plate 4 are the horizons underlying the massive anhydrite. About 58 feet of Oolitic limestone and black shales occur below the base of this member and above the top of the first lower anhydrite stringer. This stringer has a thickness of approximately 87 feet and varies in composition from pure anhydrite to lenses of anhydrite interbedded with black shale and fossiliferous limestone.

The Hill Sand horizon, immediately underlying the first anhydrite stringer, is a zone of rather fine grained sand and sandy shales having an average thickness of about 35 feet. This sand is the uppermost producing horizon in the field. It is persistent as a zone over the entire field but its sand content varies from a few feet to a maximum of 35 feet. Below the Hill horizon occurs the second lower anhydrite stringer. It consists of about 80 feet an anhydrite, black shales and gray Oolitic limestone. This zone is sufficiently impervious to separate the Hill Sand reservoir from the underlying Caddo Levee Board reservoir.

The Caddo Levee Board horizon has a total thickness of about 88 feet and consists of Oolitic limestone interbedded with black shales and sand. The porosity of the Oolitic limestone is variable. The sand occurs about 60 feet below the top of this horizon. Its development as a sand varies locally from 0 feet to about 20 feet in thickness.

Underlying the Caddo Levee Board horizon is an impervious zone of mottled red and green limestone interbedded with occasional black shales approximately 55 feet thick. Immediately below this zone occurs the Dees horizon, which is the principal reservoir of the field. The uppermost portion of the Dees horizon consists locally of a porous Coquina limestone, which when it occurs, immediately overlies the Dees sand. The lithology of the Dees sand varies from that of a true quartz sand to that of a sandy limestone interbedded with sandy shale. Its average thickness is about 15 feet. Underlying the Dees sand is another bed of porous Coquina limestone about 20 feet thick, which occurs rather uniformly throughout the field. Below this Coquina occurs the Oolitic sand, sometimes described as a "mealy lime," being very friable and porous. Occasionally, beds of dense gray limestone and black shale occur between the Coquina and the top of the Oolitic sand. Locally, the Oolitic sands often contain additional beds of Coquina. Average thickness of the Dees horizon is about 95 feet.

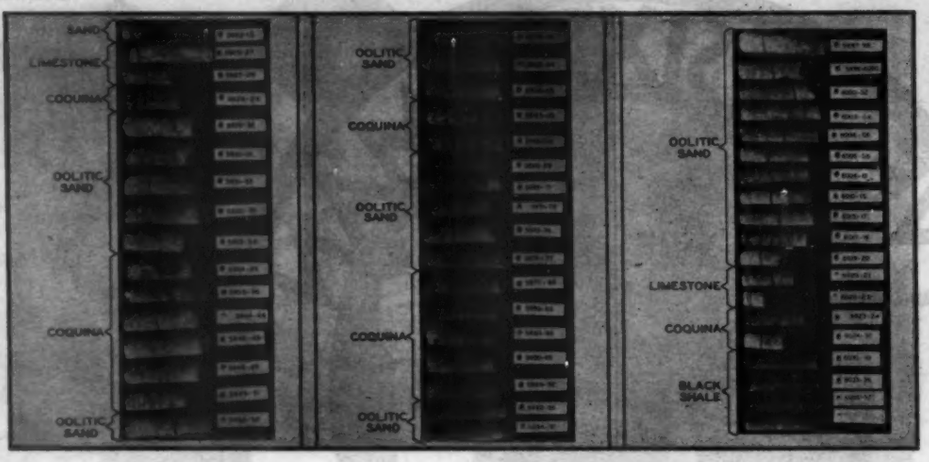


Plate 5—Continuous cores of the Dees horizon, from base of Dees sand through Coquina and Oolitic sand into underlying black shale

Plate 5 shows continuous cores of the Dees horizon, from the base of the Dees sand through the Coquina and Oolitic sand into the underlying black shale. Plate 6 is a photograph showing the texture of the Dees sand; Plate 7 illustrates the texture of the Coquina limestone and shows its extreme porosity; while Plate 8 is a photograph showing the texture of the Oolitic sand.

RODESSA FIELD RESERVOIR HORIZONS

BASE OF MASSIVE ANHYDRITE		THICKNESS IN FEET
	BLACK SHALE AND BROKEN OOLITIC LIME	58
FIRST LOWER ANHYDRITE STRINGER	ANHYDRITE, LENSED BLACK SHALE, FOSSILIFEROUS LIMESTONE	87
HILL SAND HORIZON	SAND	35
SECOND LOWER ANHYDRITE STRINGER	ANHYDRITE, INTERBEDDED BLACK SHALE, GREY OOLITIC LIMESTONE	80
CADDO LEVEE BOARD HORIZON	OOLITIC LIMESTONE, SOFT, SHALE, SAND, OOLITIC LIMESTONE	88
MOTTLED RED AND GREEN LIMESTONE	IMPERVIOUS MOTTLED RED AND GREEN LIMESTONE WITH OCCASIONAL BEDS SHALE AND DENSE LIMESTONE	55
DEES HORIZON	OCCASIONAL COQUINA, DEES SAND, COQUINA LIMESTONE, OOLITIC SAND OR "MEALY" LIMESTONE	95
TOP OF BASAL BLACK SHALE MEMBER OF GLEN ROSE FORMATION		

Plate 4—Horizons underlying the Massive anhydrite formation in the Rodessa field

Wells in the field are drilled by heavy duty rotary rigs, generally powered by 12" x 12" twin steam engines. One gasoline rig is being operated. The drawworks generally have 8-inch line and drum shafts, though the sizes vary from 6 to 9 inches. The types used are horizontal, horizontal unitized, jack shaft, and jack shaft unitized. The pumps vary in size from 14 inches to 20 inches, and the pressures carried range from 450 to 1,100 pounds, dependent upon conditions. The pumps usually are set up so that they may be compounded for higher pressures. Boilers vary in size from 75 to 125 horsepower with working pressures of from 225 to 350 pounds. In drilling, 4-inch and 6-inch drill pipe is customarily used, and 3-inch drill pipe is used for drilling or coring inside the production string. In some cases tubing has been used to drill the final plug and to drill in with. When using 4-inch to 6-inch drill pipe in making hole, most contractors normally carry three to six points weight on the drill pipe, rotated at a speed of about 80 r.p.m. The weight carried may vary from 3 to 12 points and the speed of rotation from 50 to 240 r.p.m., depending on the condition of the bit, the nature of the formation and the straightness of the hole.

Plate 6—Texture of Dees sand, Dees horizon

In starting the hole, drag and fishtail bits are used. Usually more than 75 per cent of the hole is drilled with rock bits. There is a difference of opinion among contractors in regard to the efficiency of drag bits at various points in the hole.

A notable difference in the rate of drilling of corresponding horizons has been observed in different parts of the field. A special bit is in use in the field and is utilized principally to straighten crooked holes, although several contractors have used this bit to some extent in ordinary drilling.

The number of bits required in drilling varies rather greatly from well to well. The minimum number used in one well, according to information available, was three drag bits and 14 rock bits, while a maximum of three drag bits, 29 rock bits, and 13 hard formation core-heads were used in another well. During the earlier development of the gas portion of the field it required an average of approximately 80 days to complete well. This average has subsequently been reduced to about 42 days with one well having recently been completed in 20 days to the production string casing seat at a total depth of 5,993 feet. In this latter case two drag bits, 16 rock bits and one hard formation core-head were used.

The formations penetrated at Rodessa make a very good natural drilling mud, having a weight of about 11 pounds when a "shale shaker" is used. Some of the contractors and operators in the field feel that it is advantageous to start their wells with prepared mud, keeping the viscosity low until the well gets down to the top of the first anhydrite, where they then increase the viscosity and weight in order to assure the removal of the anhydrite cuttings. The average mud used in the field varies in weight from about 9 to 11 pounds and in viscosity from about 6 to 33 centipoises, dependent upon both the personal equation of the operator and the conditions involved. The indicated best weight is about 10 pounds with a viscosity of 22 to 28 centipoises. Immediately prior to running the production string, some operators add colloidal clay to their mud in an effort to facilitate landing the pipe at the desired point.

Many different casing programs have been used, such as shown in Table 1. Program No. 5, used during the earlier development of the field, is now abandoned. The first four are still in general use.

In cementing the various strings of casing the general practice is to use from 250 to 550 sacks of cement on the surface casing, allowing it to set from eight hours to three days; 300 to 1,250 sacks on the second string, allowing it to set from 12 hours to 3 days; and 200 to 1,250 sacks on the oil string, allowing it to set from 12 hours to 5 days. "Quick Setting" cement is invariably used when the setting time is extremely short. In most cases, "Quick Setting" cement is run behind the regular cement in an effort to deliver the quick

setting portion to the base of the casing. Plate 9, Figure 1, shows the plan and profile of a full hole survey of one of the wells. While there is not sufficient data of this sort to indicate the general trend of deviation in the holes, it is interesting to note from the plan that in this case the hole tends to drift downdip to a depth of about 3,000 feet and then to drift to the right, roughly parallel to the strike of the formations. At approximately the top of the Glen Rose limestone and shale series, the hole takes an abrupt turn to the right and drifts updip through the anhydrite into the reservoirs. In this case, the total horizontal displacement of the bottom of the hole with respect to its surface position amounts to about 200 feet. The profiles indicate that the hole tended to deviate from the vertical most noticeably in the Nacatoch at about 1,500 feet; at the top of the Saratoga member of the chalk series at approximately 2,000 feet; in the Blossom sand at approximately 2,600 feet; and at the top of the Red Beds at approximately 3,350 feet. In the case of a few wells, deviation has occurred as shallow as 300 feet. The vertical depth correction based upon the survey shown amounts to about 20 feet. Crooked holes no doubt account for many of the structural variations.

Figure No. 2 shows a profile of the same well, based upon straight hole tests. The graph, of course, is plotted in a constant direction and, therefore, exaggerates the horizontal deviation of the well. It is a general practice for such straight hole tests to be made at intervals of 500 feet or less.

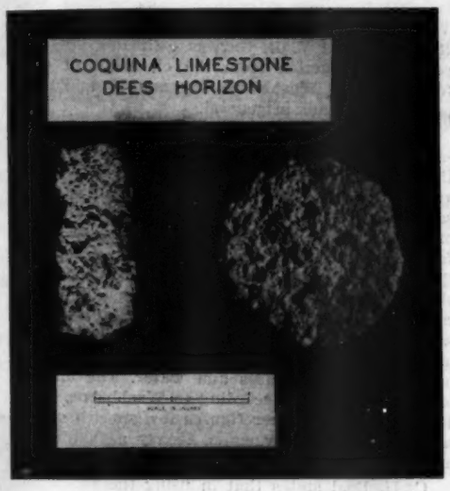


Plate 7 — Photograph showing the extreme porosity of Coquina limestone

Figure No. 3 is a generalized electrical log from the surface casing seat into the Dees horizon reservoir, together with two temperature surveys. The temperature curve on the left side of the graph was taken in an open hole four hours after circulation was stopped. The curve on the right side was taken in an open hole 12 hours after circulation ceased. While these curves do not show the true temperature of the formations, they illustrate the temperature variations that do occur in the subsurface down into the reservoir. A most interesting variation occurs at the top of the first anhydrite stringer where the temperature increases at a very rapid rate, the increase being approximately 28 degrees in about 100 feet. Bottom-hole temperature observations indicate the true reservoir temperature to be about 192° F.

Figure No. 4 shows a typical drilling rate curve together with a graph showing the horizons in which it is customary to use the different types of drilling bits, as previously described.

Figure No. 5 illustrates a typical casing, tubing, and liner program.

In completing a well the general procedure is to land and cement the production string sufficiently below the gas-oil contact so as to shut off the cap gas and minimize the gas-oil ratio. Perforated liner is usually set in the open hole below the final oil string. Some of

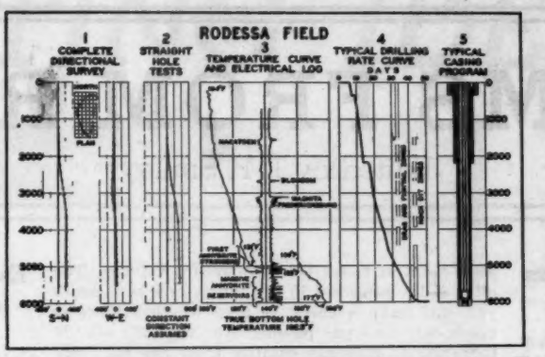

RODESSA FIELD
1 COMPLETE DIRECTIONAL SURVEY
2 STRAIGHT HOLE TESTS
3 TEMPERATURE CURVE AND ELECTRICAL LOG
4 TYPICAL DRILLING RATE CURVE
5 TYPICAL CASING PROGRAM

Plate 9—Complete operating data of a typical well drilling in the Rodessa field

the operators have completed their wells very successfully without the use of liner when the amount of open hole was not too great. In a few cases, the production string has been set through the reservoir and subsequently perforated in the oil saturated portion. Tubing is usually run to a point a few feet off bottom, either left open-ended, with varying amounts of perforations, or open-ended with skirts attached to prevent plugging.

TABLE 1—CASING PROGRAMS—RODESSA FIELD

	Size in inches O.D.	Wt. in lbs.	Grade all seam-less	Size of hole in inches	Depth in feet
—I—					
Surface string ..	16	65	C	21 & 22	250 to 750
Second string ..	10¾	40	C	16½	2,050 to 2,250
Oil string	7	24	D	9⅞ & 8¾	5,800 to 6,070
Tubing	2⅜	6.5	C	External upset	
—II—					
Surface string ..	13⅜	54.5	C	17½, 18 & 19	250 to 750
Second string ..	9⅝	36	C	12¼	2,050 to 2,250
Oil string	7	24	D	9⅞ & 8¾	5,800 to 6,070
Tubing	2⅜	6.5	C	External upset	
—III—					
Surface string ..	13⅜	54.5	C	17½, 18 & 19	250 to 750
Second string ..	9⅝	36	C	12¼	2,050 to 2,250
Oil string	6⅝	24	D	8¾	5,800 to 6,070
Tubing	2⅜	4.7	C	External upset	
—IV—					
Surface string ..	13⅜	54.5	C	17½, 18 & 19	250 to 750
Second string ..	9⅝	36	C	12¼	2,050 to 2,250
Oil string	*7	24	D	9⅞ & 8¾	5,800 to 6,070
Tubing	2⅜	6.5	C	External upset	
—V—					
Surface string ..	13⅜	54.5	C	17½, 18 & 19	250 to 750
Second string ..	8⅝	32	D	11½	5,300
Oil string	5⅝	19	D	8¼	5,800 to 6,070
Tubing	2⅜	4.7	C	External upset	

All the above casing programs are being used at the present time with the exception of number V.
*Flush joint.

The principal drilling difficulties encountered in the Rodessa field are the sticking and twisting off of drill pipe, "wash-outs," and the sticking of casing. Apparently the most hazardous points for sticking the drill pipe occur in the Nacatoch formation, the Blossom sand, the top of the Red Beds, the Lower Red Bed water sands, the anhydrite, the Hill Sand, and the Oolitic sand. "Twist-offs" most commonly occur in the intermediate limestone zone of the Red Beds and in the anhydrite. Occasionally, the second string of casing has been stuck in the Nacatoch formation. The production string has been stuck in some cases in the Hill Sand and in many cases in the Oolitic sand.

While there are almost as many different ideas as to the cause of drilling troubles in the Rodessa field as there are operators and contractors, the following causes are believed to be the chief ones: (1) "Wash-outs", causing "twist-offs". (2) Allowing the mud viscosity to become too low. (3) Failure to remove cuttings. (4) Crooked holes allowing the walls to become grooved by the pipe, thereby causing the collars to catch under certain conditions while the drill pipe is being run either into or out of the hole. (5) Carrying too much rat hole while coring.

Very often difficulties are encountered in landing the production string and liner on bottom due apparently to the dehydration of the mud at the bottom of the hole. This is probably caused by the reservoir absorbing the water from the mud under the conditions of temperature and pressure prevailing.

Plate 10 shows a generalized cross section of the three reservoirs. The development to date has shown only the presence of gas in the uppermost zone or Hill horizon. If oil is present it will have to occur down the flanks of the structure north of the present limits of oil production in the Dees horizon. The second zone, or Caddo Levee Board horizon, has shown evidences of oil saturation at a subsea depth as high as about 5,625 feet. The oil-salt water contact is as yet unknown and may be the source of some of the early salt water trouble, in as much as some of the wells set casing above this horizon. The third zone, or the Dees horizon, is the principal oil producing reservoir in the field. The gas-oil contact is believed to occur at a subsea depth of about 5,725 feet. The oil-salt water contact is not exactly known, but does occur somewhere between the subsea depths of 5,800 to 5,820 feet. The oil has a pure paraffin base, with an average A.P.I. gravity of about 43 degrees. The shut-in bottom hole pressure taken on August 25, 1935, was determined to be 2,670 pounds. A bottom-hole sample taken on the same date indicated the presence of about 530 feet of gas in solution per barrel.

Plate 8—Photograph showing texture of the Oolitic sand or "Mealy" lime

The principal production problem encountered to date is really a drilling problem and is that of getting the pipe landed and properly cemented at a point below the gas-oil contact so as to exclude the gas in the gas cap. Wells completed in this manner usually have a reasonably low gas-oil ratio, thereby effectively conserving the reservoir energy.

In completing the wells, it is a general practice to displace the drilling mud by pumping clear water into the tubing, displacing the mud from the casing until the drilling mud has been removed. At this point the wells usually begin to flow under their own pressure and are then diverted into burning pits through chokes of varying sizes, from about one-fourth inch up to about one-half inch.

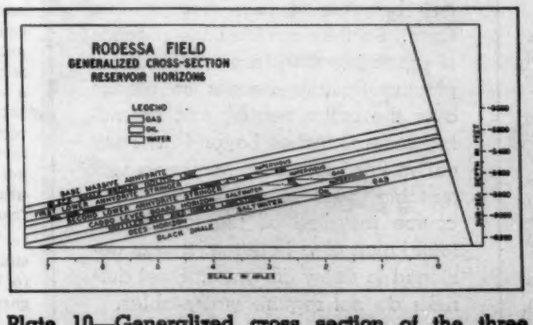


Plate 10—Generalized cross section of the three reservoir horizons in the Rodessa field

Acknowledgement

The author is indebted to H. C. Spoor, Jr., W. H. Spears, W. F. Calohan and E. D. Meredith of the United Gas System for aid in the preparation of the illustrations and for valuable criticism of the manuscript.

PROBLEMS FROM READERS

Edited by T. F. Smiley

No Reason for Regarding Vacuum as Harmful in Case of These Wells

I would appreciate an engineering opinion on the following problems that confront me: Is vacuum beneficial or harmful to oil wells? On one of my leases in Venango County, Pennsylvania, I am repressuring (secondary methods) the second, or Lytle, sand with all gas. In so doing I pull a 12-point vacuum on the 10 Lytle sand wells and also on 12 "black oil" wells, which are not being repressured. All wells responded quickly and beneficially to my program. In the winter the Lytle sand wells pumped quite thick oil. The "black oil" wells reached their peak (three times natural) in six months after installation, and have pumped that same quantity for the last three years. I have been advised both for and against vacuum. The Lytle sand is 600 feet deep and the "black oil" 680 feet. There is 75 pounds pressure on the intake well. Vacuum is at the casinghead on all wells except the input well. The lease is pumped four times a week. What are some good methods of determining whether or not a well is "blowing through?"—H. B.

There seems to be no reason for regarding vacuum as harmful in the case of your wells, which show an increase in production of 300 per cent. It is assumed therefore that what you really want to know is whether ultimate production will be favorably or adversely affected by vacuum. In the first place it is suggested that you obtain from the Government Printing Office, Washington, D. C., a copy of Bureau of Mines Bulletin No. 322. This bulletin, entitled "Effect of Vacuum on Oil Wells," was prepared by B. E. Lindsly and W. B. Berwald. It is a complete analysis of the effect of vacuum on a group of wells in northeastern Oklahoma, and it is possible you could apply the data to your property.

You of course are really using two methods of producing your oil, the pressure drive on one side and vacuum on the other, and this should be good practice, resulting in satisfactory ultimate recovery. Records from Pennsylvania fields indicate that there is still considerable oil left in the formations after they have been produced under vacuum and repressuring, and later they have yielded additional oil by water-flooding.

One point to be thought of in connection with the combined repressuring and vacuum methods is that there will be a tendency to lower the gravity of the oil because the light fractions will tend to evaporate as the input gas passes through the porous section of the formation and comes in contact with the oil in place. In one instance in northeastern Oklahoma, it is said that oil originally produced under vacuum and repressuring had averaged about 33 gravity, whereas oil produced by water-flooding averaged from 37 to 38 gravity from the same wells. This meant an increase of 8 cents a barrel in the posted price of oil from these leases.

In answering your second question about a method of determining whether a well is blowing through, it is suggested that you equip input and output wells with pressure gauges and meter the air or gas into the formation. By noting the difference in pressures, if any, you can determine whether one or more wells in the group are taking more than their share of the input air or gas. By checking the gas-oil ratio on the output wells it will be possible to determine where this extra gas is going and this should indicate whether any of it is being bypassed from input to output wells without doing effective work.

To determine the gas-oil ratio it will be necessary to have some gastight receptacle into which you can produce both the oil and gas as they come from the well and discharge the gas through some form of meter that will record volume. The oil will be measured in the tanks, and here again you can make a check to note whether there is much entrained gas passing over with the oil. If there is, as this gas escapes from the oil there will be a tendency for the fluid level to decline. This could also be checked with a hydrometer because the oil containing an appreciable quantity of gas in solution will have a higher specific gravity than the oil free of gas.

From what information you give there is no apparent reason for you to change your program now but at a later date you may decide to waterflood with these same properties to recover additional oil.

Use of Exhaust Gas in Repressuring Operations Is Not Recommended

It has been suggested that we use exhaust gases from engines and compressor plants for repressuring some of our properties. We are doubtful about it. It would mean mixing hot carbon dioxide, carbon monoxide and water vapor with the air now being introduced into the sands. Advice would be appreciated.—S. O. D.

Other operators have experimented with the procedure you describe, and available information indicates most of them abandoned the plan owing to the increased corrosion which resulted. The carbon dioxide in the exhaust gas dissolves small quantities of lime when it is mixed with water, and it holds the lime in solution as bicarbonate of lime until the excess carbon dioxide is liberated from solution in the water. The lime then is deposited as calcium carbonate. This "gyp" may plug the sands around your producing wells where the diminishing gas pressure permits escape of carbon dioxide from the water present.

WHY THEY CALLED IT *Water-table*

The mind associates the word "water" with low places. How did anything at the topmost part of an oil derrick come to be called a water-table? For many years all derricks were made of wood. The framework at the top, holding the four legs firmly in place and supporting the crownblock, was called the header. Operators soon found the tops of the leg sections were subject to rapid decay because of rain soaking into them. So they adopted the practice of protecting these exposed ends by placing flat-laid boards or planks over the entire header and extending several inches beyond it. They called this projecting member a water-table because, like the stringcourse installed at the top of the foundation of a building, it was designed to throw off water. Steel derricks do not require water-tables.

Estimating the Recovery of Oil From a Sand by the Saturation Method

I often come across references to what is called the saturation method of estimating the recovery of oil from a sand in a given pool. I know little about the technical side of oil production and I cannot seem to find anything bearing on this particular subject. I would be glad to have an explanation of this method of estimating recovery. Also please tell me what percentage of the oil in a sand is recovered. Please tell me what the capillary theory of oil accumulation is.—O. S. S.

Estimates of the percentage of oil recoverable from a sand by methods now in use vary from 10 to more than 75 per cent, depending upon a wide variety of factors in individual fields. Most estimates are based upon judgment and experience. In 1904 D. White estimated recovery from West Virginia oil sands at 25 per cent. Ten years later R. Arnold and V. R. Garfias estimated 40 to 60 per cent extraction from the oil sands of California. C. W. Washburne suggests 36 to 60 per cent for oil sands in general.

In determining probable production by utilizing saturation as a factor Washburne estimates that the porosity of sand ranges from 0 to 20 per cent and notes that field determinations of surface samples generally show lower porosity than those of buried sands, probably because near the surface calcium carbonate is deposited in some of the openings. In one determination the deep sands showed one-fourth greater porosity than the same sand at the surface. Washburne estimates for two samples 60 and 75 per cent saturation, the volumetric remainder, 40 and 25 per cent, respectively, being assigned to gases and water. The amount of oil extracted is, according to Washburne, 20 to 40 per cent, the higher figures for gas-rich oils in sands pumped to a vacuum. Heavy asphaltic oils may yield considerably less.

C. H. Beal states that in using the saturation method "it is necessary to assume that the entire productive stratum and all the pore space, or some definite part of it, are saturated with petroleum or compressed gas. Estimates of the recovery factor made in this way have been based on the assumption that a small part of the sand was saturated when in reality the saturation was greater, so that the recovery factor was smaller than estimated. For example, if the pore space of a sand were estimated to contain 10,000 bbls. of oil per acre and the recovery factor were desired, the actual production per acre (here assumed as 2,000 bbls) divided by the estimated oil content of 10,000 bbls. would give a recovery factor of 20 per cent. This factor might be assumed to be much too low and the conclusion might be reached that the whole sand was not saturated, leading to the substitution of a saturation factor of 50 per cent, which would decrease the oil content to 5,000 bbls. per acre and thereby raise the recovery factor to 40 per cent. As a matter of fact, the recovery was probably 20 per cent instead of 40 per cent, and the sand was completely saturated. It is believed that a similar error has often been made in using a saturation factor to determine oil content or a recovery factor, and that in reality the recovery factor was smaller than estimated. The author cannot conceive a uniformly porous sand partly saturated. The saturated portion must be separated from the other by impervious barriers."

The capillary theory of oil accumulation assumes that surface tension will cause oil and water to be drawn into capillary openings, without regard to the force of gravity, as water is sucked up by a sponge or as ink is absorbed by a piece of of blotting-paper.

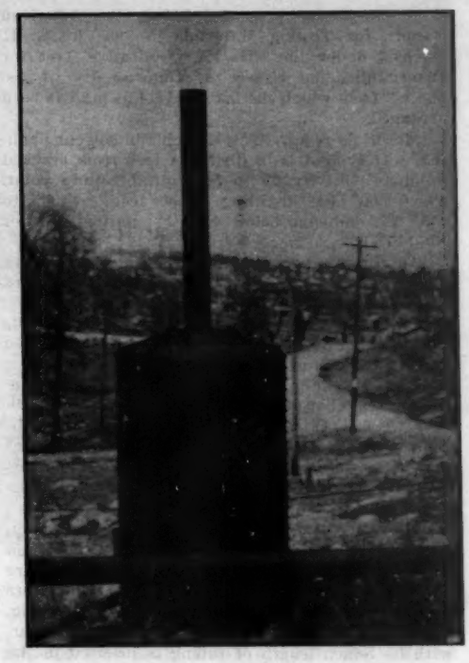
OPERATING IDEAS

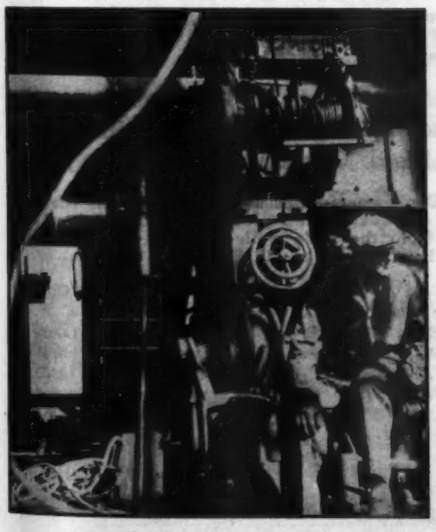
Lubricator Converted to Boiler Compound Proportioner

One oil company operating five boilers in a gasoline plant has converted the oil lubricating system of a steam pump so that now, instead of injecting the oil into steam going to the cylinder, it acts to proportion the amount of chemicals being fed into the water going to the boilers. Thus after the chemical-water ratio has been established and the feed adjusted to this ratio, the exact amount of chemical is injected into the water regardless of the volume being fed to the boilers. This method has been found to be very successful as well as accurately distributing the exact amount to each boiler. Since this proportioner has been installed the amount of chemical required has been reduced one-half and boiler scaling has been greatly reduced. The compound is injected into the water line just after leaving the pump.

Boiler Blow-Off Chamber

The small vessel shown in the accompanying photograph is used by a large gasoline plant in the Seminole field to eliminate the hazard of anyone being scalded when the boilers are blown off. The plant is located in a thickly populated neighborhood of the field so there was always the danger of children being scalded by the exhaust steam.





Small Hoisting Winch

On many occasions around a drilling rig it is necessary to handle or raise small pieces of equipment and for this purpose one drilling operator has installed the small winch shown here. The hoist is mounted on top of the drawworks and is chain driven from a sprocket on the drawworks countershaft. The winch is equipped with a braking lever and clutch for controlling speed.

Unusual Flow Line Hook-up on High Pressure Well

To cushion the slugging effect of the oil on the flow line as the well flows intermittently one operator in the Fitts Pool installs an extension on its flow lines. The 8-inch flow line into which the double 4-inch flow lines are connected is lower at the closed end. Thus there is always oil present in the line to cushion the flow as the well heads up and also reduce the amount of vibration. This hook-up is installed on one of the large wells in the Fitts extension having a casing pressure of 1,200 pounds. The company operating this lease uses but one centrally located separator with two or more wells, producing the wells separately or together. They are produced separately if the operators desire to gauge the flow.

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph.D., Technical Editor

Heterogenity Test for Asphalts or Oliensis Spot Test

If possible will you kindly supply the details of what is called the Oliensis test for asphalts? What is the object of making this test?—J. D.

A paper was presented before the American Society for Testing Materials in 1933 by G. L. Oliensis under the title "A Qualitative Test for Determining the Degree of Heterogenity of Asphalts" from which the material following has been arranged.

Materials required. A straightrun solvent naphtha, which shall be a distillate free from cracked products. Gravity 49 to 50. Initial boiling point, above 300° F.; distilling 50 per cent at 335 to 355° F.; endpoint below 410° F.; aniline number 138-145° F.

An Erlenmeyer flask of 25 ml. capacity, in which is fitted a stopper with an 8-inch length of one-quarter inch glass tubing.

Filter paper No. 50 Whatman.

Plate of smooth clear glass, which has been thoroughly cleaned, dry and free from lint.

SAMPLE: For road oils of the SC class containing not less than 85 per cent residue (by the modified A.S.T.M. Distillation D-20-30), the test may be conducted on the original material. For all other materials of the SC, MC and RC classes, the test shall be performed upon the residue from the distillation test.

PROCEDURE: A weight of the sample equivalent to 2 ml. is placed in the Erlenmeyer flask, and if it does not flow readily at room temperature it is cautiously heated in the flask on a hot-plate till it flows out over the bottom. After cooling, 10.2 ml. of the solvent are added; the stopper, with its 8-inch length of tubing is inserted in the neck of the flask; the contents of the flask are swirled with a rapid circular motion for five seconds; and the flask is immediately immersed to its neck in a bath of gently boiling water (unless the sample is a thin liquid) in which case the heating bath is unnecessary. The contents of the flask shall be again swirled for five seconds, at the end of each minute thereafter till complete dispersion takes place. If dispersion is not completed in from six to eight minutes, the test shall be repeated with the bath maintained at a 25° F. lower or higher temperature (glycerine being substituted for the water bath in the latter case) until dispersion is effected within the stipulated time. After complete dispersion, as judged by tilting the flask, the flask is allowed to cool to room temperature, and if any loss in weight occurs, it is made up with additional solvent.

A drop of the asphalt-solvent mixture is then placed on the filter paper. If the drop forms a brown or yellowish-brown circular stain, with a darker, solid or annular nucleus in the center, the test shall be reported as positive.

If, however, the drop forms a uniformly brown circular stain, judgment shall be reserved, and the asphalt-solvent mixture shall be set aside in its tightly-stoppered flask at room temperature in a subdued light for a further period of 24 hours. The mixture shall then be vigorously stirred till uniform, and a drop from it shall again be placed on filter paper. If the drop from the 24-hour old mixture still forms a uniformly brown circular stain, the test shall be reported as negative; but if a darker, solid or annular nucleus, as described in the preceding paragraph, now forms in the center of the stain, the test shall be reported as positive.

In case of dispute, the entire test shall be repeated, but only the residue from the modified A.S.T.M. distillation shall in that event be used. The drop of the asphalt-naphtha mixture shall then be placed both on the filter paper and on the glass plate. If the appearance of the drop on filter paper, either immediately or at the end of 24 hours, is still in dispute, then the showing on glass shall be final, as follows:

The drop shall be placed on the glass plate held at an angle of 45 degrees. If, as it flows out, there develops in the center of its path a dull, matte streak, well defined against the smooth, clear, glossy-brown outer zone, the test shall be reported as positive. But if a drop of the 24-hour old mixture flows out to a uniform, clear, glossy-brown film, the test shall be reported as negative.

The aniline number of the solvent shall be determined as described in the method of test for Precipitation of Lubricating Oils, A.S.T.M. Designation D91-33.

The purpose of the test is to provide a method for the qualitative detection of materials, precipitated bodies or insolubles, which will tend to reduce the smooth free flowing qualities of the product.

Reference: G. L. Oliensis, A Qualitative Test for Determining the Degree of Heterogenity of Asphalts, Proc. Am. Soc. Test. Mats., 33, 715, 1933.

SPECIFICATIONS

U. S. MOTOR GASOLINE—TRADE MODIFICATIONS

The Federal Specifications for United States Government Motor Gasoline serve as foundation specifications for use by refiners, marketers and the trade in general. There are many modifications, the most important being the addition of octane rating. There are three grades of U. S. Motor Gasoline sold in the Mid-Continent—Below 63 octane number, 63 to 70 and above 70. Most of this gasoline falls in the 63 to 70 grade. In the East Coast district the trade quotes prices on three grades—Below 60; 60 to 64.9; and 65 and above octane numbers.

Gravity, color, odor and doctor test specifications are often included. Gravity usually 58 to 62; color 25 Saybolt or some selected color; odor, good or sweet; doctor test, sweet or negative.

An example: Gravity A.P.I. min., 60.5; color, +25; odor, sweet; doctor test, negative; octane number min., 65; vapor pressure, 8/12 lbs. at 100° F.; distillation, corrosion and sulfur, same as for U. S. Motor Gasoline.

The original specifications for U. S. Motor Gasoline adopted October 2, 1918, are of interest, as outlined here:

Vapor tension	10 lbs. at 100° F.
Distillation—initial b.p., max.	140° F.

Per cent below	°F.
20	221
45	275
90	356

End or drypoint, max., 428. Recovery, min. 95%. Quality—gasoline to be high grade, refined, and free from water and all impurities.

Reference: Rpt. Com. Standzn. Petrol. Specfs., Bull. No. 1, U. S. Fuel Adm., Oil Divsn., October, 1918.

Regulations of I. C. C. for Highway Transportation of Gases

It has been suggested to us that when transporting cylinders containing liquefied petroleum gases by truck over the highways, that regulations similar to those in force for railway transportation should be observed. Can you tell us what these regulations are and under what authority they are issued?—B. C. T.

When transporting gases under pressure in cylinder over the public highways the regulations of the State Highways Commission, or similar state officers, and those of the Interstate Commerce Commission should be followed. The several states, cities, etc., have laws and orders covering the subject. The Interstate Commerce Commission under order No. 3,666, March 12, 1936, published a special regulation relating to the highway transportation of gases in cylinders. This order is quoted:

"Superseding and amending paragraph T-130 order November 6, 1934, to read as follows:

"T-130—Loading (see also paragraph T-75)—Cylinders of any compressed gas prepared in compliance with these regulations may be transported in and must be loaded into a truck or other vehicle in horizontal position, except when the vehicle is provided with high, solid or slatted, not sectional, sides, and an efficient means for securely holding the cylinders in an upright position, and except when the cylinders are packed in boxes or crates; and care should be exercised to prevent damage to valves or valve fittings. Cylinders must be so loaded that during transportation no pressure upon the valves from the outside will be possible.

"Cylinders must be loaded with valves toward the forward end of the vehicle when vehicle is to be unloaded from the rear."

This regulation shall be and remain in force on and after June 20, 1936.

Analysis of Oil From Medicine Bow Field, Carbon Co., Wyoming

Could you furnish us with an analysis showing the quality and products contained in the oil from the Kyle well in the Medicine Bow field of Wyoming?—G. S. P.

This oil is the result of drilling by the Ohio Oil Co. and the California on the property of W. M. Kyle, sec. 26, T. 21N., R. 79W, in Carbon County, Wyoming. The initial flow was 265 bbls./hr. of 63° A.P.I. gravity oil from the Second sand made on June 7, 1935. The total depth of the discovery well was 5,397 feet. The surface elevation at the well is 7,271 feet.

ANALYSIS OF MEDICINE BOW OIL
Kyle No. 1

Gravity, A.P.I.	63.4
Sulfur, per cent	under 0.10
Viscosity Say. Univ. at 77° F.	under 32 sec.
Color, N.P.A.	3
Pourpoint	below 5° F.

	Per cent
Gasoline (gravity 67.8)	73.5
Kerosene (gravity 43.2)	11.7
Gas oil (gravity 37)	4.1
Lubricating oil	3.2
Residuum	1.0
Loss (distillation)	6.5

This analysis has been arranged from the information report of the U. S. Bureau of Mines, July 12, 1935.

For information about the history of development, geological data and logs, see the Mines Magazine, February, 1936.

The Damascus Blade was famous in the days of the Crusaders. It had great elasticity and remarkable temper. It was decorated with delicate and beautiful designs which ran through the entire blade and could not be worn away by time, friction or even grinding. Imitations have been made by etching designs in steel, but such imitations are quickly worn off, and the quality of Damascus steel remained unexcelled for several centuries.

It is said that the famous Damascus Blades were heat treated and hardened by thrusting the blade at the proper temperature into the thigh of a slave, where it cooled slowly.

The Frick-Reid stencil or label on oil country equipment means quality comparable with that of the ancient Damascus Blade—quality that goes through and through. And no slave is sacrificed—no principle violated. Frick-Reid service and quality are recognized everywhere as thoroughly dependable.

FRICK-REID SUPPLY CORPORATION

PITTSBURGH, PA. TULSA, OKLA.

Stores Everywhere

A substantial portion of the new Turtle Bay field, Chambers County, Texas Coast, being developed by Stanolind Oil & Gas Co., is expected to lie in Turtle Bay, showing first test. At right piling is being driven for roadway to second location

Potentialities on the Gulf Coast Spurring Search for Reserves

By NEIL WILLIAMS

HOUSTON, Tex., Apr. 13.—Much has been written and discussed concerning the Gulf Coast and its petroleum reserves. In all accounts, this area has been pictured as a reserve of extensive potentialities, and an area to which the industry must look for a large part of its crude requirements of the future. Possibly no other single district in the country has been visioned as having such a promising outlook.

Uncovering and proving these potential reserves has been the incentive for the active exploration and development program which has been going on. From all parts of the country, large and small companies as well as numerous independent operators, have come into this district with a desire to partake of these resources and to entrench themselves with a more adequate crude supply.

As a result of this play 85 fields and known salt domes have been found within the past five years. This figure is exclusive of the numerous prospects indicated by geophysical instruments, many of which generally are accepted as domes or structures but on which no production has been opened so far.

With these additions, the list of Gulf Coast fields has been increased to a total of 139. There are 19 known salt domes which have not been productive but which are included since every salt dome is considered potentially productive. At present 16 of the 120 areas in which oil or gas has been proved are not producing, leaving 104 fields actually productive. The others still have prospects for further development.

The total recoverable reserves of all these fields, based on the life expectancy of the present productive areas and known horizons, have been estimated at between 2,500,000,000 and 3,000,000,000 bbls. Figures which have been compiled by The Oil and Gas Journal based on estimates from various sources place the total at 2,989,188,840 bbls. Of this reserve 1,148,882,711 bbls. had been produced up to January 1, 1936, leaving a reserve yet to be recovered from present known production of 1,840,306,129 bbls. This represents a substantial percentage of the estimated recoverable reserves for the entire country, calculated at approximately 13,000,000,000 bbls.

Geophysical Operations

From the extent of exploration work done, the great number of fields uncovered, and the sizeable reserves built up, it might be assumed possibilities for further exploitation have been exhausted. To the contrary, what has been learned as a result of the work done and the discoveries made has served only to indicate the existence of greater potentialities yet untouched and spurred efforts to uncover these remaining reserves.

So far there has been no indication of any abatement in the active exploration. More geophysical crews are operating in the district than in the history of the coast, the number of crews being approximately 125. These are spread from one end of the coast to the other. New fields are being brought in constantly. From Jackson County, Texas, eastward across southern Louisiana, 18 fields have been opened within the past year. Since the first of the year three fields have been brought in.

Just what the limit of this will be cannot be predicted. With the increasing geophysical work there has been considerable speculation as to just how long this exploration and discovery of fields can go until there are no more fields to be discovered. Some predictors have attempted to foretell that the Gulf Coast will be completely exhausted of all its possibilities for new exploration within the next two to five years. An article on this subject appeared in the October 10, 1935, issue of The Oil and Gas Journal. In this, inference was given that geophysics is an evolutionary science and while at times it may seem the field has been completely covered, discoveries constantly are being made which lead to renewed exploration along entirely different lines.

It is realized that by the process of elimination each new field means one less to be discovered, and the dis-

Continental Oil Co. No. 1 Ortego, discovery well of the Tepetate field, Acadia Parish, Coastal Louisiana, showing new high pressure separator hookup

covery of new fields is becoming increasingly difficult. But, with the gradual improvement in exploration equipment and methods, and increasingly difficult. But, with the gradual improvement in exploration equipment and methods, and increasing efficiency in operation of these instruments and greater knowledge of the geophysical science and of formational conditions, the field for exploration steadily is being broadened.

Additions to present Gulf Coast reserves in sight can come from two sources, the opening of new fields, and the proving of new horizons not only in the new fields but also in the old fields.

As to new fields very little can be predicted definitely. The rate of field discoveries is as high, if not higher, now than at any other time, yet it cannot be predicted this rate will keep up. On the other hand there still are large areas in which comparatively little, if any, development has been done, and which offer opportunities for additional fields.

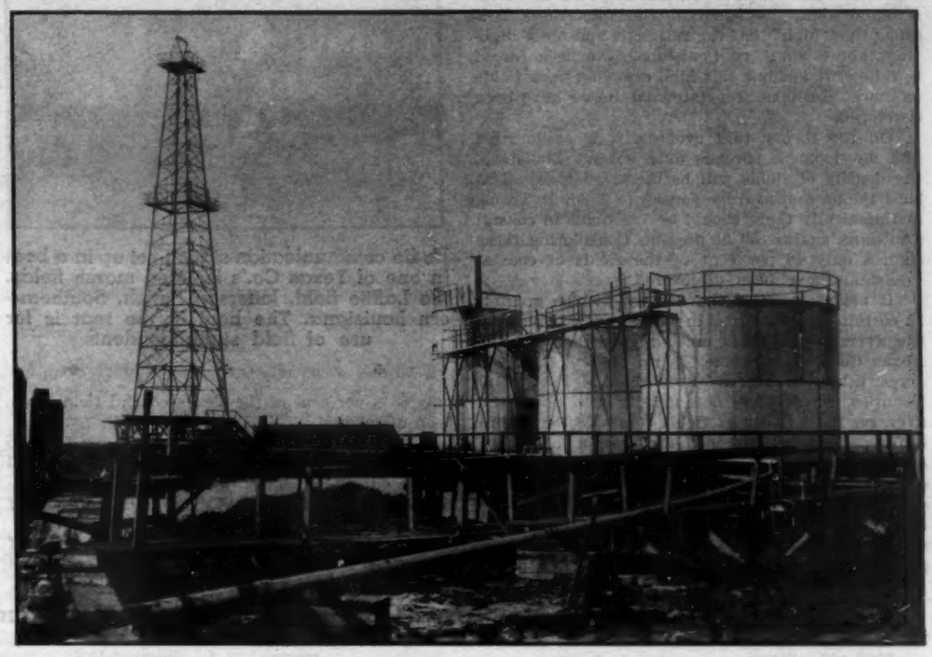
Atchafalaya River Basin

One of the largest so far undeveloped areas is the Atchafalaya River flood basin extending up through the central part of coastal Louisiana between the Atchafalaya River and the Mississippi River. This basin, consisting of overflow and delta land covering several millions acres, has been an almost impregnable swamp, and until the last year and a half exploration crews and operators have had to confine their work to the edges of this swamp and to a few of the main channels and bayous through it. The United States government, however, has had under way for several years a flood relief and drainage project which has been opening this region to exploration and as many as 40 to 50 first rate prospects, not counting doubtful areas, already have been revealed. Following the law of averages a large percentage of these prospects should be proved fields.

There also are numerous bays, lakes and other water beds which have not been exploited. Of particular interest is Galveston Bay, leases on a large part of which have just been awarded by the state. This bay and its associated bays comprise upwards of 325,000 to 350,000 acres, but until recently no attempt has been made to explore these waters. Exploration for the most part has stopped at the shores of these bays because as long as there were ample potential areas and prospects definitely in sight elsewhere companies were not particularly concerned with work out in the water which involves more costly and possibly more difficult operations. Judging from the density of fields and domes around Galveston Bay it is likely there are from four to six fields in the bay. A major geophysical exploration program is under way in the bay which may take several years.

In the same way, other bays, lakes and water beds not yet worked hold similar prospects. The Gulf of Mexico itself offers opportunities as the water for a number of miles out from shore is shallow enough in most places for oil operations. Quite a bit of the shore waters of the Gulf already is under lease. Also, the shallow sounds just off the southeastern coast of Louisiana has been under lease for years.

At the same time fields continually are being found in areas more favorably located topographically. Some of these have been on prospects which previously were not looked upon as being promising, and in places which have been worked and reworked without important indications being found. There are numerous undrilled prospects which constitute potential fields. Many may not be looked upon at this time as particularly prospective in the light of present geophysical or geological interpretations but it has been learned that what are doubtful or uncertain anomalies today may prove the important type of fields tomorrow. There also is considerable virgin territory, particularly along the the so-called Conroe trend across Louisiana.



Producing well and field tank battery set up in marsh located field, southeastern Louisiana

Airplane view of Lake Washington district in marshes of southeastern Louisiana. Canals are dredged to locations to permit use of drilling barges

A study of the density of Gulf Coast fields and salt domes offers some interesting speculation as to the possibilities of additional fields. On a map of coastal fields and domes it can be noted readily that the density of such fields and domes is greater in those areas where exploration and development have been more concentrated, and also has a direct relationship to the accessibility and topography of the country. In the exploration it has been the tendency for operators to concentrate in the more accessible places and then work out into areas of less and less accessible terrain. In places in which it has been very difficult to get and work or which involve considerable expense on the part of the operators to explore and develop, exploration has been very slow and less extensive, and in these places as a rule there has been a minimum density of fields.

Relative Density

Whether the same relative density of fields eventually will prevail in these areas of remote, less accessible and more difficult terrain cannot be stated, but from a subsurface standpoint there is no reason to assume different conditions exist in those areas than in places of more favorable surface conditions.

As a whole, the greatest density of fields and domes is in the coastal district of Texas. Here, the average density is one field or dome to approximately 136,920 acres, based on a total of 80 fields and known salt domes in an area of 10,953,600 acres. This area embraces that portion of Texas eastward from Jackson County and coastward from a line paralleling the coast approximately 100 to 125 miles inland.

In the Louisiana coastal portion the average density of fields and salt domes is one to approximately 286,828 acres, being figured on a basis of 59 known fields and domes in a total of 16,922,880 acres. Generally speaking, the terrain of the Texas Gulf Coast is much more accessible and favorable than that of coastal Louisiana, and it has been, in this part, until more recently, the most intensive exploration has been carried on. It also was on the Texas side of the line, at Spindletop, that the first production was found on the Gulf Coast, and it was around here most of the original wildcatting and development centered.

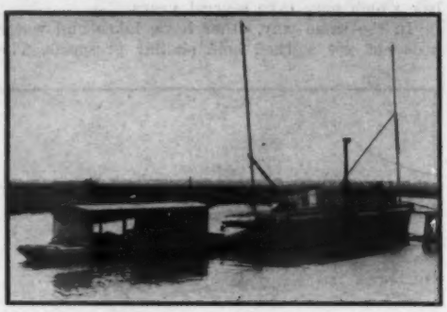
With few exceptions the most intensive exploration and development in coastal Louisiana has been

in the extreme southwestern portion immediately adjacent to the Texas line and diminishing eastward along what is known as the "Pacific High." This high trend extends eastward and westward across Louisiana, dipping off into the coastal marshes, where exploration has not been so extensive and where the density of fields decreases. It is along this "high" that the railroads and main highways across southern Louisiana have been forced to follow. It is along this high also that such fields as Iowa, Roanoke, Tepetate and Bosco have been developed.

On the theory that eventually as exploration and development spreads over coastal Louisiana, the density of fields will be increased to equal at least the present average density of fields in Texas, arithmetically there should be 123 fields in coastal Louisiana against 59 at present. Considering these figures only 48 per cent of the fields of coastal Louisiana have been discovered.

It also is possible the density will be greater. In certain selected areas in Texas, as in Louisiana, the average density is much higher than for the Texas Coast as a whole. In an area of 2,423,040 acres, taking in Harris, Brazoria and Fort Bend Counties, where there is a density well above the average, the number of fields totals 28, or one to 86,537 acres. As possibly exploration has been more intensive in these counties than in most any other area it is likely when other parts are covered as thoroughly the same relative density of fields will prevail. In that event, a total of 126 fields can be expected on the Texas Coast in comparison to the present total of 80. On this basis, only 63½ per cent of the Texas coastal fields have been discovered.

RADIO STATION IN MARSH



Radio communication station set up in a boat in one of Texas Co.'s isolated marsh fields, the Lafitte field, Jefferson Parish, Southeastern Louisiana. The boat in the rear is for use of field superintendents

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Using the same density figure of one field to 86,537 acres, a total of 195 fields can be expected in the entire Louisiana Coast with a total of 16,922,880 acres. On this basis only 30.2 per cent of the fields in coastal Louisiana have been found.

The average density of fields for the entire Gulf Coast area is one to 200,550 acres, based on a total of 139 fields to a total acreage of 27,876,480 acres.

In certain more selected and more localized areas, the density of fields is greater, running as high as one field to approximately 53,000 acres. On this basis the total number of fields to be expected will be materially increased.

Development of deeper horizons offers perhaps the greatest potentialities for additional petroleum reserves. All horizons which have been reached so far have been comparatively recent in age, leaving formations producing in inland fields yet to be reached by the drill. Sedimentary formations have been estimated as being 20,000 to 25,000 feet thick with even this depth exceeded in some places.

Coastal operators have been going steadily deeper in search of lower horizons. Ten years ago 6,000 feet was looked upon as very deep drilling and up to late in 1925 when a test at Lockport was drilled to 6,107 feet no well had been drilled below that level. Today, new development is looked upon in terms of 7,000 feet, 8,000-, 9,000- and even 10,000-foot wells.

Four tests on the Gulf Coast have been drilled to depths below 10,000 feet. So far no commercial production has been found at such levels but several tests have encountered important showings, indicating production at those depths. It is generally believed it will be only camparatively short time before there will be fields producing commercially below 10,000 feet.

Deepest production on the Gulf Coast is at Lafitte, Jefferson Parish, Louisiana, where Texas Co. has four wells flowing from depths at 9,500-9,600 feet. Even at that depth the wells are not out of

Texas Gulf Coast Fields and Salt Domes

Field and county—	Total estimated reserves	Production to January 1, 1936	Estimated remaining reserves	No. wells March 21	Dy. av. prod. week ending Mar. 21	Year production discovered
Ace, Polk	250,000	30,702	219,298	1	51	1934
Alien, Brazoria	100,000	73,827	26,173	1	14	1928
Amelia, Jefferson	2,000,000	.....	2,000,000	1	158	1936
Anahuac, Chambers	202,000,000	339,699	201,660,301	56	5,868	1935
Ariola, Hardin	2,500,000	986,695	1,513,305	10	1,196	1932
Barbers Hill, Chambers	84,300,000	51,126,638	33,173,362	180	16,738	1918
Batson, Hardin	42,000,000	36,684,369	5,315,631	170	1,878	1903
Big Creek, Fort Bend	11,000,000	8,505,002	2,494,998	20	1,056	1922
Big Hill, Jefferson	17,111	17,111	.....	....	(‡)	1923
Big Hill, Matagorda	500,000	203,589	296,411	....	(‡)	1904
Blue Ridge, Fort Bend	12,000,000	9,616,126	2,383,874	47	1,591	1919
Boling, Wharton	6,250,000	6,077,840	172,160	78	734	1925
Brenham, Austin-Washington	350,000	244,538	105,462	23	23	1928
Bryon Mound, Brazoria	.....	(‡)	.....	....	.....	....
Buckeye, Matagorda	2,500,000	526,743	1,973,257	2	256	1932
Clay Creek, Washington	6,000,000	3,247,261	2,752,739	41	1,038	1929
Clemens, Brazoria	.....	(‡)	.....	....	.....	....
Cleveland, Liberty	2,250,000	408,352	1,841,648	9	848	1933
Conroe, Montgomery	675,000,000	56,282,137	618,717,863	895	41,677	1932
Damon Mound, Brazoria	15,000,000	8,575,129	6,424,871	32	461	1917
Danbury, Brazoria	3,403	3,403	.....	....	(‡)	1934
Davis Hill, Liberty	.....	(‡)	.....	....	.....	....
Dickinson*, Galveston	40,000,000	310,871	39,689,129	19	1,738	1934
Esperson, Liberty	6,500,000	3,574,065	2,925,935	26	875	1929
Eureka, Harris	20,000	4,696	15,304	1	(‡)	1934
Fannett, Jefferson	3,000,000	1,631,965	1,368,035	15	1,096	1928
Garwood, Colorado	10,000	2,042	7,958	....	(‡)	1933
Goose Creek, Harris	88,000,000	72,012,277	15,987,723	78	2,897	1912
Hankamer, Liberty	7,500,000	3,535,005	3,964,995	26	2,088	1929
Hardin, Liberty	350,000	54,312	245,688	1	248	1935
Hastings, Brazoria	100,000,000	620,921	99,379,079	58	5,510	1935
Hawkinsville, Matagorda	.....	(‡)	.....	....	.....	....
High Island, Galveston	18,500,000	11,081,715	7,418,285	62	7,614	1922
Hockley, Harris	25,000	16,930	8,070	....	(‡)	1933
Hoskins, Brazoria	100,185	31,755	68,430	....	(‡)	1904
Hull, Liberty	95,000,000	79,966,866	15,033,134	183	5,617	1917
Humble, Harris	135,000,000	118,620,249	16,379,751	270	3,492	1905
Katy, Waller	.....	Gas	.....	1	(‡)	1935
Kittrell, Houston	2,500,000	412,973	2,087,027	12	1,062	1934
Liberty, Liberty	18,000,000	14,782,554	3,217,446	48	682	1909
Livingston, Polk	10,000,000	2,117,974	7,882,026	84	2,802	1933
Long Point, Fort Bend	.....	(‡)	.....	....	.....	....
Lost Lake, Chambers	1,500,000	783,421	716,579	7	208	1929
Louise, Wharton	1,500,000	607,846	892,154	23	1,433	1933
Lockridge, Brazoria	.....	.....	.....	1	(‡)	1936
Manvel, Brazoria	50,000,000	4,171,948	45,828,052	100	7,295	1931
Markham, Matagorda	8,000,000	2,777,756	5,222,244	30	1,465	1922
Moss Bluff, Liberty	295,825	295,825	.....	....	(‡)	1930
Mykawa, Harris	5,000,000	1,146,328	3,853,672	29	3,975	1931
Nash, Fort Bend-Brazoria	1,750,000	1,677,212	72,788	1	40	1926
North Dayton, Liberty	2,500,000	2,180,294	319,706	10	168	1905
Old Ocean, Brazoria	500,000	115,017	384,983	2	427	1934
Orange, Orange	35,000,000	32,626,614	2,373,386	54	720	1913
Orchard, Fort Bend	5,000,000	2,934,719	2,065,281	12	612	1926
Pickett Ridge, Wharton	1,000,000	46,481	953,519	7	1,064	1935
Pierce Junction, Harris	37,000,000	29,171,475	7,828,525	69	2,988	1921
Pledger, Brazoria	750,000	13,108	736,892	9	Gas	1933
Port Neches, Orange	10,000,000	3,428,071	6,571,929	18	1,800	1929
Raccoon Bend, Austin-Waller	69,250,000	15,326,339	54,023,661	134	4,782	1928
Rockland, Jasper	50,000	34,092	15,908	3	10	1929
San Felipe, Waller	50,000	14,055	35,945	1	9	1934
Saratoga, Hardin	31,000,000	27,512,483	3,487,517	218	888	1904
Shepherds Mott, Matagorda	.....	.....	.....	1	(†)	1935
Sour Lake, Hardin	81,000,000	76,318,190	4,681,810	151	1,561	1902
South Bay City, Matagorda	1,000,000	.....	1,000,000	1	181	1936
South Houston, Harris	2,500,000	68,771	2,431,229	11	1,526	1935
Spindletop, Jefferson	132,000,000	123,507,756	8,492,244	157	2,597	1901
Splendora, Montgomery	10,000	984	9,016	1	(‡)	1935
Sprager, Tyler	.....	Gas	.....	....	(‡)	1932
Stratton Ridge, Brazoria	35,000	31,895	3,105	....	(‡)	1922
Sugarland, Fort Bend	75,000,000	22,788,152	52,211,848	59	5,581	1929
Thompson, Fort Bend	200,000,000	18,240,309	181,759,691	192	10,778	1931
Tomball, Harris-Montgomery	30,000,000	3,154,830	26,845,170	197	6,495	1933
Turtle Bay, Chambers	2,000,000	2,637	1,997,363	2	271	1935
Van Vleck, Matagorda	2,000,000	34,665	1,965,335	4	485	1934
West Columbia, Brazoria	100,000,000	77,428,088	22,571,912	36	2,466	1917
Withers, Wharton	1,000,000	.....	1,000,000	1	153	1936
Total	2,475,176,524	938,075,692	1,537,100,832	3,983	169,377	

*Includes Gillock area. †Small production, noncommercial. ‡Proven salt domes but no production to date. §Produced short time, discovery well now drilling deeper. ‖Production either abandoned or shut in.

the Miocene. Formations on the Gulf Coast thicken coastward, and also eastward into Coastal Louisiana, and this field, in the southeastern part of Louisiana, and still in the Miocene, has ahead of it the Oligocene and Eocene productive in many coastal fields further westward at much shallower depths.

Three other fields have production below 9,000 feet. These include Bosco, on the Acadia-St. Landry Parish line in coastal Louisiana; Dickinson, in Galveston County, Texas, and the new South Bay City field, in Matagorda County. The latter has one well, completed early in March with bottom of the hole at 9,439 feet. These fields at such depths are producing from Marginulina-Frio sands in the lower Oligocene.

Development of Marginulina-Frio sands overlying deeply seated salt domes and structures has been one of the most important plays, and a large number of prolific fields have been proved up in these horizons. Most of these have been on the Texas side where these horizons are found at much shallower depths. The Marginulina, and in a few instances, the Frio, has been productive of a number of good fields in Louisiana, and the list steadily is being increased as deeper drilling and exploration spreads.

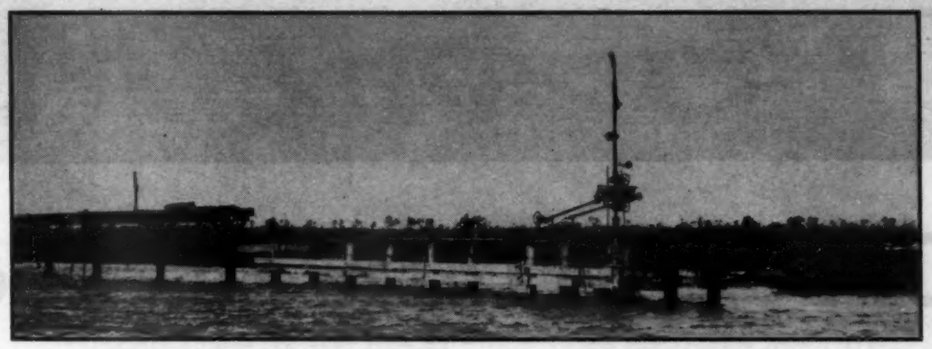
Below the Marginulina-Frio horizons are the Jackson, Cockfield, Cook Mountain and Mount Selman, Wilcox and lower formations, stratigraphically. Of these the Jackson and Cockfield sands have received the greatest play although for the most part their development has been limited to the so-called Conroe trend, following a strip along the coast just northward and inland from the regular coastal fields. The Wilcox is the deepest horizon stratigraphically in which production has been found and it has been developed only in a very few of the more inland of the fields, such as Clay Creek and Kittrell, where this horizon is found at comparatively shallow depth. Drilling to the Cook Mountain and Mount Selman also has been very limited and scattered. A wildcat gas well completed last year by Stanolind Oil & Gas Co. on the Katy prospect in Waller County, is reported to have produced from the Mount Selman. It is assumed all these horizons will be found underlying the Gulf Coast generally as deeper drilling and exploration proceeds.

In summary, it can be predicted that the deeper horizons probably will account for most of the fields expected to be opened. As all the producing areas in any horizon become known, it is only by exploiting each successively lower formation that fields can be opened. Each new horizon opened always adds a substantial list of producing areas not productive in any of the shallower formations, and each deeper horizon proven productive starts a new general exploration over the entire coast for additional fields in that horizon or around fields already known.

The depth to which operators will go to find additional petroleum reserves will be determined largely by the limits of equipment and also of engineering ability of the operators. Although there is no way of knowing definitely just what formations exist below the present deepest known horizons, there is reason to assume sedimentary formations exist to enormous depths, and in such formations there always are potential sands and production. This leaves the only problem one of reaching these producing horizons and recovering the oil.

Equipment now available is believed capable of drilling to at least 15,000 feet, although engineering skill in controlling formational conditions evidently has not yet advanced that far. In some parts of the country, holes have been carried to 12,000 feet, and on the Gulf four tests have drilled below 10,000 feet. All these holes, however, have been lost due to formation problems. On the other hand, operators gradually are drilling deeper and deeper and it is not doubted with increasing experience in handling such depths the goal of 15,000 feet or lower will be reached and drilling at such depths will become common.

DRILLING BARGE COMPLETED THIS WELL



Well in Lafitte field, Southeastern Louisiana, was drilled with a drilling barge

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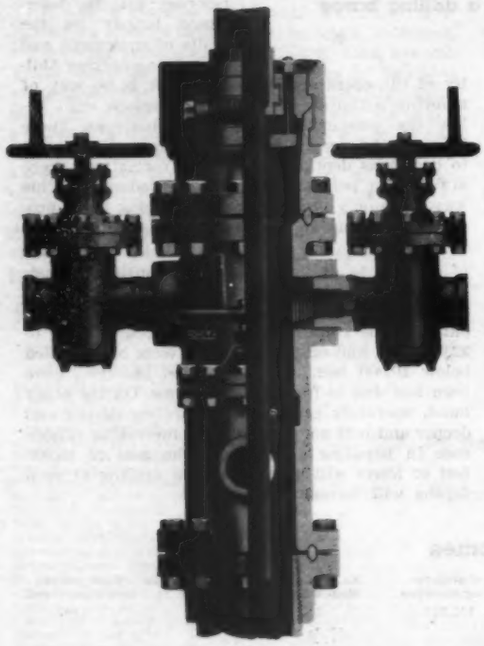
Louisiana Gulf Coast Fields and Salt Domes

Field and parish—	Total estimated reserves	Production to January 1, 1936	Estimated remaining reserves	No. wells March 21	Dy. av. prod. week ending Mar. 21	Year production discovered
Anse La Butte, St. Martin	1,100,000	988,727	111,273	5	90	1902
Avery Island, Iberia	.....	(‡)	.....	....	.....	....
Bay Junop, Terrebonne	.....	(‡)	.....	....	.....	....
Bayou Blue, Iberville	75,745	75,745	.....	....	(‖)	1929
Bayou Bouillon, St. Martin	439,837	439,837	.....	....	(‖)	1928
Bayou Des Glaise, Iberia	.....	(‡)	.....	....	.....	....
Bayou Mallet, Acadia	.....	Gas	.....	1	35	1936
Bay St. Elaine, Terrebonne	.....	†Gas	.....	....	(‖)	1929
Belle Isle, St. Mary	.....	(‡)	.....	....	.....	....
Big Lake, Cameron	.....	Gas	.....	1	31	1936
Black Bayou, Cameron	7,500,000	2,338,260	5,161,740	14	3,092	1929
Bosco, Acadia-St. Landry	41,000,000	7,390,721	33,609,279	56	14,067	1934
Caillou Island, Terrebonne	15,000,000	4,580,237	10,419,763	13	10,874	1930
Calcasieu Lake, Cameron	.....	(‡)	.....	....	.....	....
Cameron Meadows, Cameron	15,000,000	1,604,713	13,395,287	21	5,878	1931
Cheneyville, Rapides	1,000,000	7,918	992,082	2	263	1935
Choctaw, Iberville	10,000,000	943,058	9,056,942	6	1,050	1931
Cote Blanche, St. Mary	.....	(‡)	.....	....	.....	....
Darrow, Ascension	10,000,000	257,042	9,742,958	3	1,032	1933
Dog Lake Terrebonne	1,000,000	3,468	996,532	1	854	1929
East Hackberry, Cameron	20,000,000	11,540,884	8,459,116	52	7,066	1927
Edgerly, Calcasieu	10,000,000	9,204,143	795,857	19	222	1913
Fausse Point, Iberia	1,737	1,737	.....	....	(‖)	1925
Four Isle, Terrebonne	5,000,000	230,414	4,769,586	1	50	1934
Garden Island Bay, Plaquemines	2,500,000	85,558	2,414,442	1	1,040	1935
Gill's area, Calcasieu	15,000,000	2,222,399	12,777,601	33	13,899	1934
Gueydan, Vermilion	1,400,000	574,631	825,369	4	191	1932
Iowa, Calcasieu-Jefferson Davis	65,000,000	16,395,001	48,604,999	43	18,156	1931
Jeanerette, St. Mary	1,000,000	.....	1,000,000	2	1,485	1936
Jefferson Island, Iberia	.....	(‡)	.....	....	.....	....
Jennings, Acadia	60,000,000	45,372,902	14,627,098	42	3,032	1902
Lafitte, Jefferson	20,000,000	543,081	19,456,919	4	5,642	1935
Lake Barre, Terrebonne	25,000,000	12,056,831	12,943,169	25	9,562	1929
Lake Hermitage, Plaquemines	1,000,000	52,998	947,002	1	11	1934
Lake Pelto, Terrebonne	1,500,000	254,527	1,245,473	1	110	1929
La Rose, La Fourche	.....	(‡)	.....	....	.....	....
Lake Washington, Plaquemines	5,000,000	1,208,409	3,791,591	11	1,426	1931
Leesville, La Fourche	20,000,000	10,004,452	9,995,548	80	14,185	1931
Lockport, Calcasieu	30,000,000	13,468,978	6,531,022	25	1,220	1924
Lutcher (Chacahoula), La Fourche	.....	(‡)	.....	....	.....	....
Napoleonville, Assumption	.....	(‡)	.....	....	.....	....
New Iberia, Iberia	3,500,000	689,656	2,810,344	5	2,975	1917
Old Hackberry, Cameron	4,000,000	2,232,761	1,767,239	18	328	1928
Pine Prairie, Evangeline	20,000	20,000	.....	....	(‖)	1912
Fort Barre, St. Landry	10,000,000	5,284,099	4,715,901	23	2,765	1929
Roanoke, Jefferson Davis	21,000,000	1,837,853	19,162,147	16	5,799	1934
Sorrento, Ascension	1,000,000	582,236	417,764	5	518	1928
Starks, Calcasieu	5,000,000	2,225,793	2,774,207	18	495	1927
St. Martinsville, St. Martin	1,575,000	29,218	1,545,782	1	865	1935
Sulphur, Calcasieu	15,000,000	8,186,732	6,813,268	56	4,197	1927
Sweet Lake, Cameron	5,500,000	2,836,008	2,663,992	6	996	1928
Tepetate, Acadia	12,000,000	130,127	11,869,873	7	3,405	1935
Vermillion Bay, Iberia	.....	(‡)	.....	....	.....	....
Venice, Plaquemines	.....	(‡)	.....	....	.....	....
Vinton, Calcasieu	55,000,000	42,906,545	12,093,455	81	1,995	1910
Weeks Island, Iberia	.....	(‡)	.....	....	.....	....
Welsh, Jefferson Davis	900,000	553,092	346,908	17	33	1903
White Castle, Iberville	5,000,000	1,446,228	3,553,772	7	711	1929
Total Louisiana Coast	514,613,319	310,807,019	303,205,300	737	135,655	
Total Texas Coast	2,475,176,524	938,075,692	1,537,100,832			
Total Gulf Coast	2,989,185,843	1,148,882,711	1,840,306,132			

‡Proven salt dome, but no commercial oil or gas production. ‖Production either abandoned or shut in. †One well produced some oil.

O-C-T Christmas-Trees



Showing the method of drilling in through complete X-tree, and running and landing tubing through O-C-T Type "H" blowout preventer. This eliminates the hazard of installing the 'tree after plug has been drilled.

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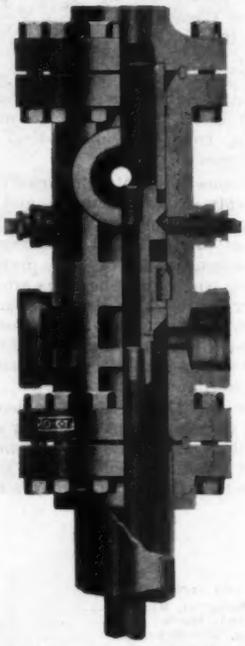
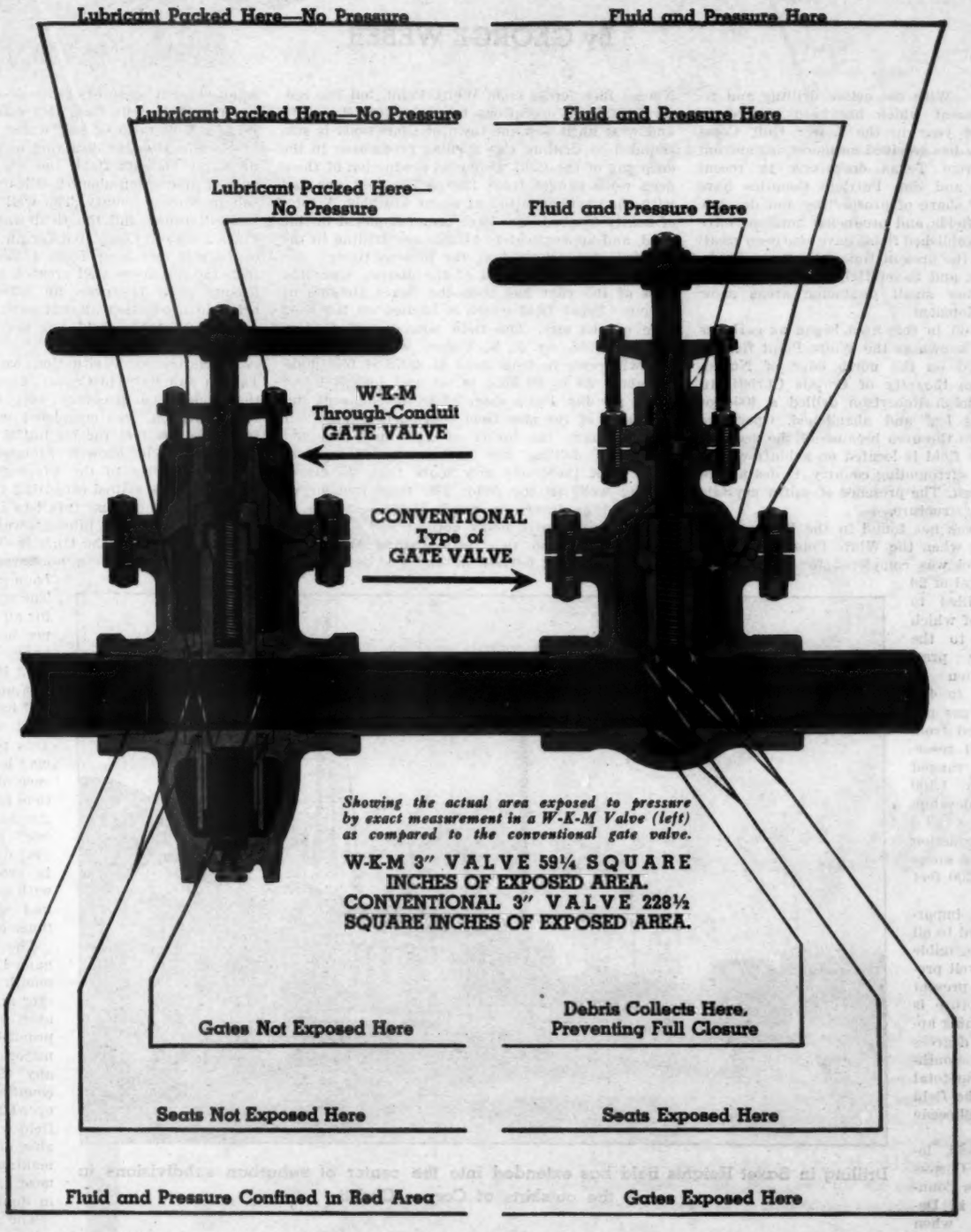
It's the only complete Christmas-tree allowing installation before plug is drilled. You flange the entire 'tree on your oil string after cementing . . . no rotating to connect up. You drill in and run and land tubing right through the Christmas-tree.

It's 75% stronger, considerably lighter, requires less space, and has fewer parts. Male thread valves screw directly into tubing head, eliminating nipples. Flow area is full opening, allowing swabbing 2½" tubing through a 2½" valve.



Cutaway section of main body of X-tree, with tubing hanger in place. The I.D. of this main body is the same as the I.D. of the casing it is made to fit.

These three field views are examples of the hundreds of O-C-T Streamline 'trees now affording safe, permanent hook-ups for operators throughout the Southwest.


Lubricant Packed Here—No Pressure
Fluid and Pressure Here
Lubricant Packed Here—No Pressure
Fluid and Pressure Here
Lubricant Packed Here—No Pressure
Fluid and Pressure Here
W-K-M Through-Conduit GATE VALVE
CONVENTIONAL Type of GATE VALVE
Showing the actual area exposed to pressure by exact measurement in a W-K-M Valve (left) as compared to the conventional gate valve.
W-K-M 3" VALVE 59¼ SQUARE INCHES OF EXPOSED AREA.
CONVENTIONAL 3" VALVE 228½ SQUARE INCHES OF EXPOSED AREA.
Gates Not Exposed Here
Debris Collects Here, Preventing Full Closure
Seats Not Exposed Here
Seats Exposed Here
Fluid and Pressure Confined in Red Area
Gates Exposed Here

Nueces and San Patricio Counties Are Leading Lower Gulf Coast Activity

By GEORGE WEBER

With the active drilling and resulting development which has been carried on during the past year in the Lower Gulf Coast region, that area has received an increasing amount of attention from Texas operators. In recent months Nueces and San Patricio Counties have had the greater share of prospecting and development and new fields and producing horizons have been opened. Established fields have also been greatly extended. At the present time three large fields, Plymouth, Saxet and Saxet Heights, are being exploited and other small producing areas show promise of development.

Drilling for oil in this area began as early as 1904 in what is known as the White Point field, a gas field located on the north edge of Nueces Bay across from the city of Corpus Christi. In that year Randolph Robertson drilled a 400-foot hole which was lost and abandoned. Operators were attracted to the area because of the peculiar topography. The field is located on a bluff which, contrary to the surrounding country, is drained to the north and east. The presence of sulfur crystals also indicated a structure.

Production was not found in the White Point field until 1911, when the White Point Oil & Gas Co. No. 1 Rachel was completed for a gasser at 1,900 feet. A total of 20 wells were drilled to this sand, half of which blew out due to the high formation pressures. Production of from 20,000,000 to 43,000,000 feet of gas per day was obtained from these wells, and reservoir pressures ranged from 800 to 1,100 pounds. Later development of this field brought in production from three other sands at 2,100 feet, 2,300 feet and 2,500 feet.

The field's importance with regard to oil production is negligible since only one well produces oil at the present time. The structure is an anticline running approximately 15 degrees northeast and southwest. Gas in the total of 67 wells in the field is found in the Pliocene and Miocene.

The Saxet field, located west of Corpus Christi in Nueces County, was opened in December, 1922, when Saxet Oil Co. No. 1 Dunn was completed for a gasser at 2,400 feet. Development of gas production followed this discovery until 1930 when the same company found oil in the No. 6 John Dunn at approximately 4,300 feet. The well produced 240 bbls. of 24 gravity Miocene oil per day. Drilling in the Saxet district has since resulted in the opening of a total of five principal sands at 4,000 feet, 4,300 feet, 4,400 feet, 4,550 feet and 4,800 feet. The latter sand is at present the most important, both from the standpoint of potential production and exploration activity.

The original field was located near the edge of Nueces Bay across from White Point, but the center of drilling operations has moved to the south and west until now the town of Clarkwood is surrounded by drilling rigs opening production in the deep pay of the field. Potential production of these deep wells ranges from 139 to 770 bbls. per day with the average initial at about 470 bbls. A total of nearly 50 producers have been completed in this sand, and approximately 11 rigs are drilling in the vicinity of Clarkwood at the present time.

The most active field of the district since the first of the year has been the Saxet Heights or Corpus Christi field which is located on the west edge of the city. The field was opened in late October, 1935, by J. K. Culton when his No. 1 Baldwin came in from sand at 4,078-84 feet making about 35 to 40 bbls. of oil and 1,000,000 feet of gas per day. For a short while, development and expansion of the new field continued quietly, but since January the influx of new operators and number of drilling rigs have increased continuously until there are now more than 25 active drilling wells in the field. The total number of completed producers in Saxet Heights stands at about 50 wells, with many outpost and edge operations active, and two tests drilling below the present producing horizon in search of deeper pay.

Drilling in Saxet Heights field has extended into the center of suburban subdivisions in the outskirts of Corpus Christi

The structures of the Saxet and Saxet Heights fields are conceded to be of faulted anticlinal nature. Early conceptions of the Saxet field classified it as a dome. Faulting plays a major part in the Saxet field structure, and apparently accumulation in the Saxet Heights field is due to faulting also. Three or four of these faults are believed present in the Saxet field, extending northeast and southwest with a gentle dip of about 45 degrees. Production has been found on both sides of these faults, greatly complicating a study of the subsurface picture. The oil sand of the Saxet Heights field is especially thin, with a thick overlying gas sand. Several operators have encountered difficulty in producing wells from this sand due to either a large gas-oil ratio or salt water percentage.

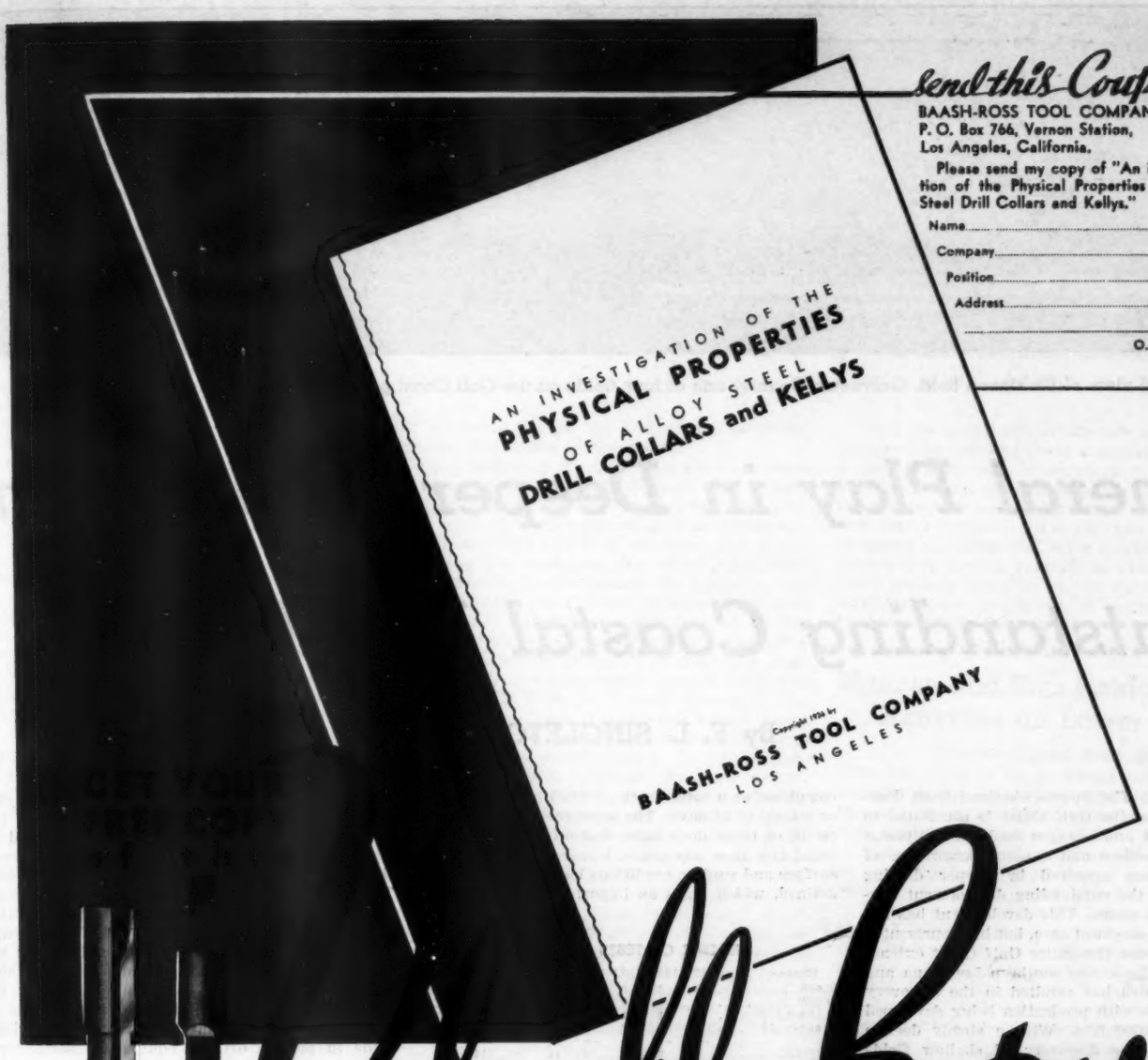
Shortly after the discovery of the Corpus Christi or Saxet Heights field, the Santa Clara Oil Co. opened production about 2 miles northeast of Driscoll in Nueces County. The well is located on the Driscoll ranch and the field was given the name Clara Driscoll. Completed for an initial production of 72 bbls. per hour from a total depth of 3,816 feet, the discovery well created much interest and leasing play. However, an offset test failed to bring in production at that sand, and further development of the field has not been pursued to date.

Much the same situation was encountered at Taft in San Patricio County, another new field in the trend. The discovery well, George E. Smith No. 1 Britton, was completed in the Greta sand at 4,882-4,906 feet for an initial of 425 bbls. per day. The field showed promise of constituting south 2½ miles to the Plymouth field, but the next two tests drilled offsetting the discovery well on the north and east failed to find production in the sand. However, interest was revived in the field recently when the Humble Oil & Refining Co. completed a well in a northwest offset location from sand at 3,975 feet. The well was completed for an initial of 35 bbls. per hour, and the company has since gone back into its abandoned test north of discovery, and has found the same sand to be productive. This peculiar condition may be due to the presence of a fault, but the field is much too new to give any definite knowledge of its structure. The discovery well is producing regularly with sustained pressure, and shows no indications of being a freak.

The Plymouth field, named for the Plymouth Oil Co., discoverer and principal operator, presents the most promising indications of major production of any field in the two counties. There are now over 62 producers in the field with a daily allowable of 135 bbls. each, making it one of the most important fields in Southwest Texas.

The presence of a structure here was first anticipated through observation of the northward deflection of Chiltipin Creek from its normal east-west course through the Welder ranch of San Patricio County. Since surface geology in that country has no value, the field was surveyed by magnetometer, torsion balance and seismograph. Plymouth Oil Co. No. 1-C Welder, the discovery well, located on evidence gained from these surveys, was completed in April, 1935, in what is known as the Plymouth sand at 5,508 feet. Subsequent operations by the Heep Oil Corp. opened a second sand, the Heep sand at

(Continued on Page 95)



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General view of Dickinson field, Galveston County, one of four fields on the Gulf Coast producing from sands below 9,000 feet

General Play in Deeper Exploration Outstanding Coastal Development

By F. L. SINGLETON

The success obtained from deeper exploration on the Gulf Coast is attributed to the improvement and changes made in equipment and drilling practices and a better knowledge of surface conditions acquired by deeper drilling which has been the outstanding development during the past two years. This development has not been centered in one local area, but has represented a general play over the entire Gulf Coast extending some 600 miles across southern Louisiana and South Texas which has resulted in the discovery of nine oil fields with production being developed from 8,000 to 9,600 feet. With a steady decline being shown in the discovery of shallow fields within the past few years, all indications point to an increase in deeper drilling and production from even greater depths are expected to be developed.

Steady Trend

Since the first 8,000-foot production was developed on the Gulf Coast in 1932, the trend toward deeper drilling has been steady until now 9,000 and even 10,000-foot holes are looked up more or less as routine development and very little publicity is connected with the operation. However, the real importance of these great depths, whether the well is a dry hole or a producer, is the fact that the company or operator who drills them has advanced drilling technique another step forward which will enable additional improvements to be made in equipment and drilling practices to the extent that even deeper holes can be drilled easier and safer.

While many changes and improvements have been made in equipment there are numerous practices and engineering methods yet to be developed. Some of the important changes made in equipment which have been responsible for the success now obtained include the use of larger mud pumps, taller derricks, heavier and stronger drilling assemblies, larger casing and drill pipe, improved drilling bits and various types of other equipment.

The result of these improvements are reflected in the time that is now being saved in completing 8,000 and 8,700-foot wells. At the Bosco field in Acadia Parish, Louisiana, Smith and McDannald, contractors of Houston, have established several remarkable drilling records for this field, which is producing from around 8,600 feet. The record of one well is as follows: Rigged up on the 8th of May, started drilling on the 10th, cemented 1,220 feet of 13⅜-inch casing on the 13th, well completed at a total depth of 8,655 feet on June 3, or a total of 34 days. The average completion time on 18 of these deep holes was 46 days. This unusual fast time was made, however, after the subsurface and surface conditions had been fairly well defined, which plays an important part in saving time, once a structure is proven productive. For instance, at the Tepetate field, located in the same parish, a total of 72 days were required to drill the discovery well to the 8,300-foot sand, compared to the present wells now being completed within 25 to 30 days. All wells drilled to date have been drilled by Nicklos Drilling Co. and Loffland Brothers, contractors of Houston.

NUMBER OF TESTS BY YEARS

Feet—	1929	1930	1931	1932	1933	1934	1935	1936
10,000	0	0	0	0	0	0	4	1
9,000	0	0	0	1	2	6	28	15
8,500-9,000	0	1	1	1	2	17	61	15
8,000-8,500	2	2	2	1	7	12	23	19
Total	2	3	3	3	11	35	116	50

PRODUCING WELLS BY FIELDS

Fields—	10,000	9,000	8,500	8,000	Total
Bosco	0	3	42	3	48
Dickinson	0	8	3	15	26
Lafitte	0	5	0	0	5
Old Ocean	0	0	2	0	2
Roanoke	0	0	12	0	12
Shepherds Mott	0	0	1	0	1
South Bay City	0	1	0	0	1
Tepetate	0	1	1	7	9
White Castle	0	0	1	0	1
Total	0	18	62	25	105

Another interesting record was marked up at the south extension area of the Dickinson field in Galveston County by C & C Drilling Co., who drilled No. 1 Maco Stewart for the Coast Petroleum Co. The well was drilled to the contract depth of 8,000 feet in 18 days and was flowing into the tanks from a depth of 8,654 feet in 25 days. This unusual fast time was accomplished, however, due to the fact that no time was spent for coring, the oil sand being located by running an electrical coring test, which is another scientific achievement that has helped to promote more efficient completion methods.

The above records are not to be taken to mean that such fast time can be made on every field on the Gulf Coast which is producing below 8,000 feet, for such is not the case. Even though the topography and environments of this country consists of flat coastal plains, the majority of the fields within this large area are characterized by widely different circumstances, consequently practically every field has its own drilling problem. The majority of the fields along the Texas Coast are located on dry land, while a few are located in the marshes along the Gulf of Mexico. In Coastal Louisiana, however, most of the fields are situated in lakes, bays and numerous bayous, which necessitates the use of boats and barges for the conveyance of men and material and driving of piling foundations. Many improvements have been made in marine drilling equipment, particularly the use of patented steel drilling barges, which has proven to be a time saver as well as reducing the added expense of marine drilling.

Types of Rigs

Practically every type of drilling rig is being used in the present development program, the most common being steam powered, gasoline and electric rigs. One of the deepest holes drilled by an electric rig was used at the Roanoke field in Jefferson Davis Parish by the Humble Oil & Refining Co. on No. 2-B Devilbiss, which was drilled to a total depth of 8,423 feet. It was powered by a 200-horsepower motor on the drawworks with two 150-horsepower motors for the pumps. As a standby for the drawworks in the event of any electric power failure or need of additional power there was a 125-horsepower gasoline engine. Power was furnished from a high-line which was stepped down at the location from 3,300 volts to 440 volts. This type of rig has been used successfully at Pierce Junction, Mykawa, Darrow and on several wildcats.

Increased depth of drilling and the greater loads which must be handled have necessitated the availability of more power and batteries of three boilers of 100 to 125-horsepower are usually set up for the steam-driven rigs. With this added power available have come heavier engines, larger mud pumps and more elaborate drawworks. In fact, practically every deep test now drilling on the Gulf Coast is equipped with the largest and most modern equipment. Three and four-speed drawworks are the general type, and in most cases they are chain driven.

The progress that has been made in deeper exploration is reflected in the number of new fields that have been opened since the discovery

of the first important 8,000-foot production at the Bosco field in 1934. Eight new fields have been added, the deepest wells being the Lafitte field in Jefferson Parish, Louisiana, where Texas Co. has five producing wells in sand from 9,550-9,650 feet. This field is owned entirely by the Texas Co. and was opened a year ago this May. Other fields producing below 9,000 feet are the Dickinson field in Galveston County and the South Bay City field in Matagorda County. The latter field was opened this year and is producing from the Frio sand through casing perforations from 9,361½-70 feet. There are three wells at the Bosco field producing from 9,092-9,107 feet, while at the Dickinson field seven are producing between 9,000 to 9,150 feet.

Within Two Years

The majority of the deep holes have been drilled within the past two years, particularly during 1935. The first test to reach 8,009 feet was Yount-Lee Oil Co. No. 4 Chambers at Barbers Hill, which was abandoned in October, 1929, at a depth of 8,142 feet. Later in the year this same company abandoned another 8,000-foot well at the Jennings field in Louisiana. During the next year four more 8,000-foot holes were added to the list, two of which were drilled below 8,500 feet. Since then the number has increased each year. In 1932 the first test to reach 9,000 feet was drilled by Edwin M. Jones when he abandoned No. 2 Mitchell. At the close of the year three wells had been drilled below 8,500-9,0000 feet and 14 below 8,000 to 8,500 feet.

The first test to reach a depth of 10,000 feet was drilled by Superior Oil Producing Co. in 1934 and was abandoned at 10,005 feet. During this year the list of 9,000-foot holes were increased considerably with the addition of 14 wells drilled below that depth exclusive of the 10,000-foot hole.

That a new era in deeper exploration has arrived is reflected in the number of 10,000-foot holes drilled during 1935 and the first three months of 1936. Besides the 10,000-foot test drilled at Bosco, Humble Oil & Refining Co. and Shell Petroleum Corp. drilled two wells below 10,000 feet in the Roanoke field in Jefferson Davis Parish, Louisiana. The latter test attempted to blow out at 10,000 feet, but was later abandoned when the drill stem became stuck after the hole had been plugged back, sidetracked and redrilled to a depth of 10,750 feet, which is the deepest depth ever reached on the Gulf Coast. This same company abandoned another 10,000-foot wildcat located in Terrebonne Parish, while the other was drilled by Superior Oil Producing Co. on the Duplanter Community lease in East Baton Rouge Parish.

Deep drilling on the Gulf Coast has come about by successive stages of development. The original production was found from the cap rock and overlying sand of shallow domes, such as Spindletop, Sour Lake, Batson and several other salt domes. Following this, production was developed in shallower Miocene sands around the flanks of the various domes. Later deeper flanking sands were discovered in the Oligocene horizon which marked up another era in coastal production development. With the increased efficiency of geophysics came the discovery of nonpiercement types of structures, including such fields as Manvel, Thompson, Van Vleck, Hastings, Iowa, Roanoke and several others. Practically all of these fields are producing from the same general horizon, that of the Marginulina; however, in Coastal Louisiana the sands are encountered at much lower depths, due to the dipping off and also thickening of the Miocene beds.

Proving up these deeply seated domes and producing horizons has been perhaps the most important development on the Gulf Coast since the discovery of the Conroe field, which started a trend play across Texas and the northern part of Coastal Louisiana. During the early days of geophysical exploration these deeply seated structures were not recognized, but with the shallower domes becoming scarce geophysical work is now directed largely at locating such types, which has been responsible for the present deep development program.

That the major part of the new production in the future on the Gulf Coast is to come from deeply seated structures is beginning to be realized with the gradual elimination of shallow fields and the increase in new fields which are producing from deeper horizons. All in all, these factors have furnished the background for a continuation of the present deep drilling program in which lower and lower horizons probably will be reached, the only limitation being the capacity of modern machinery to reach such depths.

FIELD THAT NEVER HAD A PIPE LINE

Loading oil on a barge in the East Hackberry field, Cameron Parish, Coastal Louisiana

TOWN LOT DRILLING IN SOUTHWEST TEXAS

Vacant lots and back yards scenes of drilling in the new Saxet Heights field on the west edge of the city of Corpus Christi

Nueces and San Patricio Lead Activities on Lower Gulf

(Continued from Page 90)

5,600 feet. This is the producing horizon for the majority of the wells in the field, and is believed to be 90 to 100 feet thick, although it has never been drilled completely.

A third and still deeper sand was later opened to production in the south end of the field by the Magnolia Petroleum Co. at 5,900 feet.

In structure, the field is a north-south anticline about 3 miles in length. Faulting is indicated in the southwest edge of the field proper, and a fault is known definitely to exist in the extreme south portion of the field, where the 5,900-foot production is found. Although the main sand of the field is well defined, the interface between the gas and oil sands is difficult to determine. Best results in completing wells are obtained by drilling into the oil sand, setting casing on the bottom and perforating for production through screen and tubing.

Although prospecting in these two counties has been pushed to a considerable extent in recent months, there is no indication of a decline in wildcat activity at present. Eleven wildcats are now drilling throughout the district. Of these, the most important to date is the Benedum & Trees Oil Co. No. 2 Welder located about midway between the Plymouth field and Sinton. This test has recovered oil in a drill stem test taken at 5,696-5,710 feet and at present operators are attempting completion which would add another field to growing number in the area.

Finding of new production is not restricted to the wildcatter. The general subsurface of the Lower Coastal region is characterized by a multiplicity of sands, and it is the opinion of many that deeper production may be found in many horizons underlying established fields.

Increase in Gas Send-Out

Reports from a group of companies representing approximately half of the manufactured gas industry in the United States show an increase in gas send-out for the months of January and February of 4.62 per cent over the same months in 1935. For January the increase was 1.24 per cent over January, 1935, and in February, after adjustment for leap year day, the increase in send-out was 8.39 per cent.

When returns are received from natural gas companies, it is believed the send-out for these months will show a greater increase, since this involves a larger proportion of industrial use which has had substantial gain.

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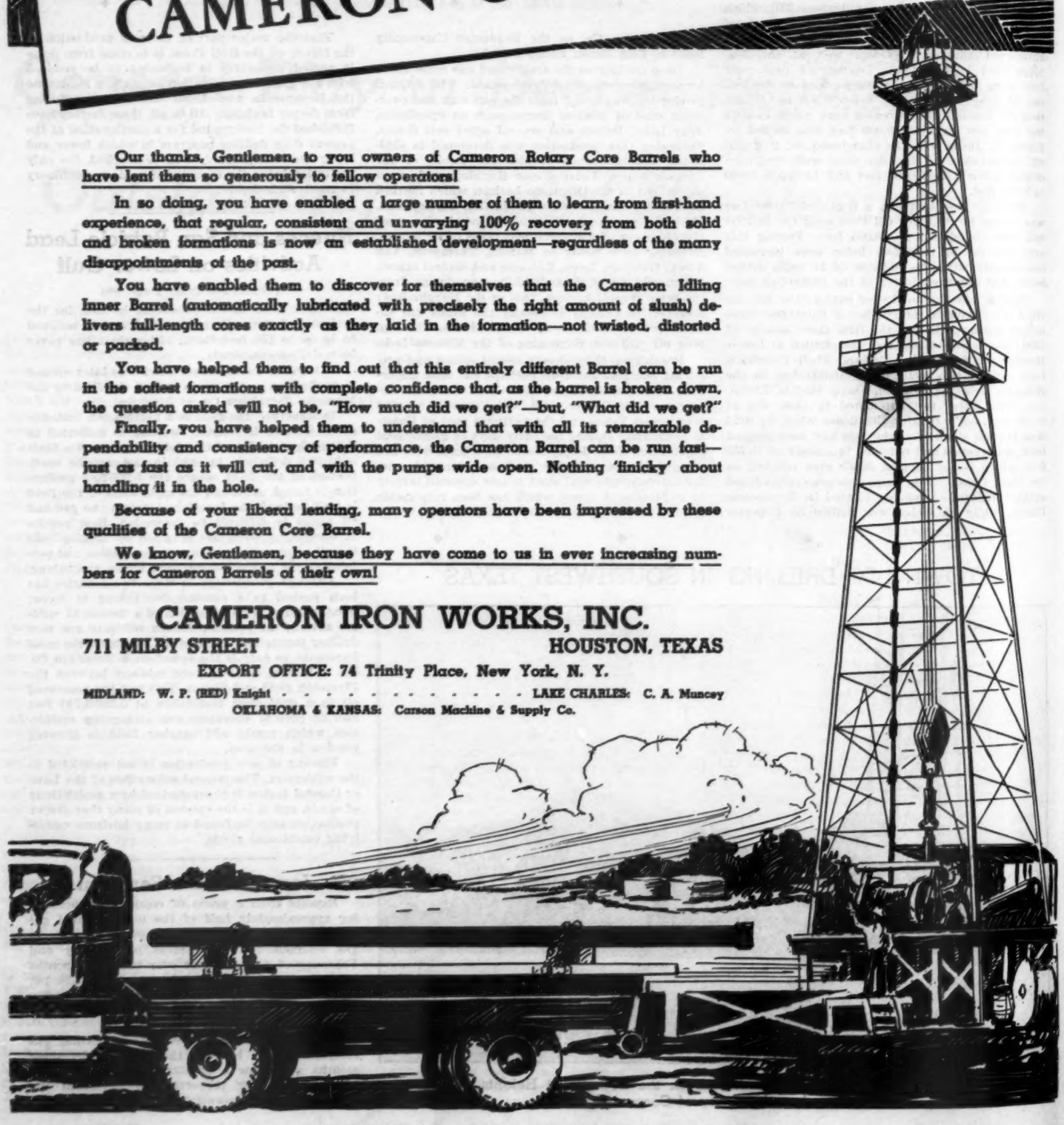


Oil Movement by Canals and Rivers Feature in Coastal Louisiana Area

By F. L. SINGLETON

Probably the largest producing area ever developed in the United States without having one major pipe line outlet is Coastal Louisiana. Its natural network of bays, lakes and numerous rivers has played an important part in the development of this district, which is now looked on as one of the most promising oil reserves.

While there has been several pipe lines constructed within the past two years, their destinations are usually to terminal sites where the oil is loaded on deep water tankers and shipped to refineries at New Orleans, Port Arthur, Beaumont and Houston by the way of the Intracoastal Canal.

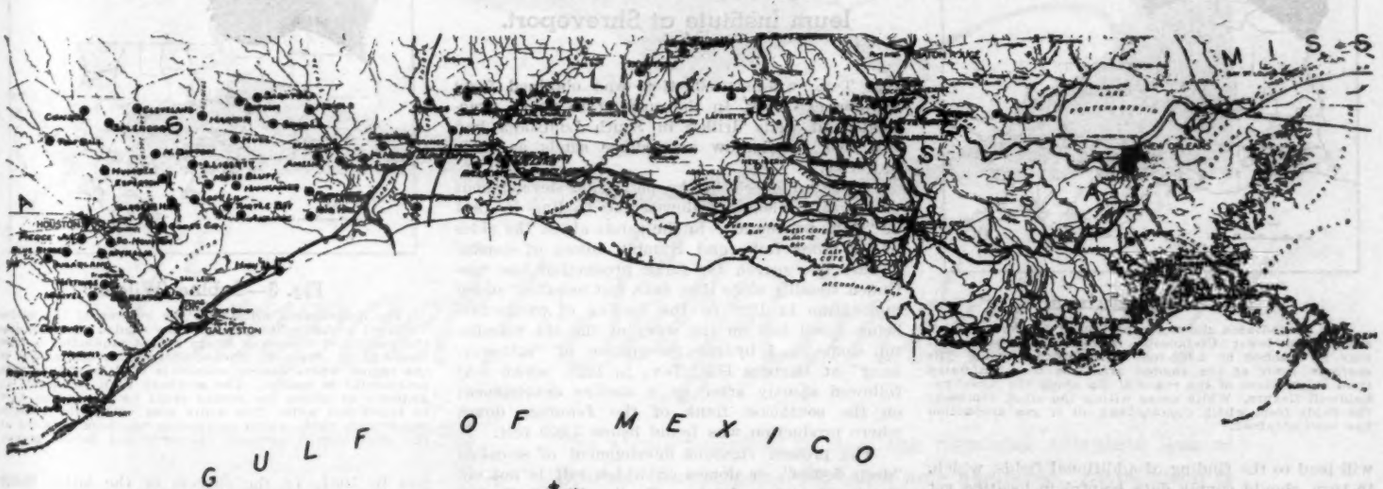
By looking at the map accompanying this article it is readily seen that no matter where a field may be discovered a water outlet of some description is provided. Without question the construction of the Intracoastal Canal has done more for the advancement of southeastern Louisiana as an important oil sector than any one thing. It extends from the Mississippi River at New Orleans southwesterly through the heart of the entire oil district to a point below Galveston and covers a distance of 379 miles. This is as far as the channel is navigable, although surveys have been made and the federal government has appropriated funds for the continuation of the canal to Corpus Christi. The minimum depth of the channel is 9 feet and it is 100 feet in width. It is fed by some 20 important rivers in Louisiana alone, the depth of which range from 5 to 35 feet and from 40 to 1,000 feet in width.

A study of a topographic map of southeastern Louisiana readily reveals why there are such few pipe line outlets. Practically the entire area is just a few feet above sea level and the majority of the land is low and marshy, which makes it more practical to move the oil by barge. Another factor is the expense required for the construction of lines across the numerous rivers and swamps and the cost of maintenance under such adverse conditions.

While cost of transporting oil by water varies, depending upon a scale agreed upon by the producer and the individual contractor, the price usually runs from a few cents per barrel to 25 cents per barrel, which is the approximate cost by pipe line. Many of the fields are located within such a short distance of navigable streams or channels, the cost of hauling by barge to deep water tankers is a minor transportation factor.

The routes of these canals and rivers are very interesting and very often it is necessary to barge the oil a distance several times as great as the air line between the field and terminal. This requires many hours for the barge to return for other shipments, and for this reason many companies are beginning to construct pipe lines to their terminals in an attempt to speed up the movement of oil.

Pipe lines constructed within the past two years include Continental Oil Co.'s 47-mile 6-inch line from the Tepetate field in Acadia Parish to a terminal located south of Lake Charles; Texas Co.'s 6-inch line from the Lafitte field in Jefferson Parish to terminals at the town of Marrero, south of New Orleans; same company's 9-mile 6-inch line from the Garden Island field in Plaquemines Parish to Pilot Point and the Pure Pipe Line Co.'s 8-inch line from the Bosco field in Acadia Parish to the Mermentau River. While the oil from these fields is delivered to terminals, the actual outlet to refineries is still dependent upon water transportation.



Map showing route of intercoastal canal, important feeders and locations of producing fields

One of the most interesting water gathering systems is that operated by the Texas Co. This company was one of the first to pioneer in marine development, which has opened nine fields. The majority are situated in Terrebonne Bay, which affords a direct water outlet to the Gulf of Mexico.

The fields located in this group are Four Isle, Dog Lake, Bay St. Elaine, Lake Pelto, Leesville, Caillou Island and Lake Barre. Storage facilities for these fields has been provided for at Port Texaco, a centralization point located south of Lake Pelto, where the oil is stored in two old sunken tankers, each having a capacity of 75,000 bbls. From here the oil is barged to tankers out in the Gulf, where it is taken to the company's refinery at Port Arthur.

This group of fields are so closely connected that the longest route from Port Texaco is only 35 miles, this being from the Four Isle field through Dog Lake, both of which are located outside of Terrebonne Bay. Oil from Caillou Island to Port Texaco is only 6 miles, while the haul from the rest of the fields is not over 12 miles. Crude from the Leesville field, located about 30 miles to the northwest in LaFourche Parish, is barged through a canal to Terrebonne Bay and thence to Port Texaco.

One of the most ideally situated fields for water transportation is the Garden Island field, situated in the extreme southern part of Plaquemines Parish, near the mouth of the Mississippi River. For a while this oil was moved by barge up the Mississippi River to the Intracoastal Canal for shipment to Port Arthur. However, a pipe line has been recently constructed from the field to Pilot Point located out in the Gulf about 9 miles, where the oil is run direct to tankers for shipment to Port Arthur.

There is not a field in Coastal Louisiana that has not some time or other depended on water transportation. Crude from the Lake Washington field in Plaquemines Parish is barged through a short canal to the Mississippi River and from there to a refinery at Baton Rouge. To the northwest oil from Lake Hermitage goes by barge through another canal to the Mississippi River to Standard Oil Co.'s terminal at New Orleans. Other fields from which oil is moved by water through the Intracoastal Canal, rivers or lakes include White Castle, Sorrento, Hackberry, Lockport, Darrow, Choctaw, Cameron, Meadows, Black Bayou, Sweet Lake and the Gillis field.

While much has been said about the movement of oil by water, the improvements made in dredging this great network of waterways has afforded more accessible conditions for the exploration of other areas yet to be developed. During the past three years the federal government has been doing an enormous amount of construction work in the Atchafalaya Basin, consisting of the excavation of cutoffs, improvements of channels by dredging as well as improvements of existing channels, all of

(Continued on Page 128)

LOUISIANA Petroleum Stratigraphy

By HENRY V. HOWE
Louisiana State University, Baton Rouge, La.

Success in finding petroleum is dependent upon accurate stratigraphic information. The recent discovery of the Rodessa field in North Louisiana and of the Bosco, Roanoke, Lafitte, Tepetate, St. Martinsville, Jeanerette, and Willow Lake (Big Lake) fields in South Louisiana has focussed attention upon the state as a great potential source of new petroleum. The production at Rodessa comes from around 6,000 feet; in the other fields it has been obtained at depths ranging from 5,000 to nearly 10,000 feet. These fields have opened up production from many new horizons. The stratigraphic information which they afford will lead to the finding of additional fields, which, in turn, should supply data helpful in locating yet more sources of production.

Fig. 1—Comanchean

The shaded area shows the portion of northern Louisiana where lower Cretaceous (Comanchean) sediments may be reached by 5,000-foot to 10,000-foot wells. The southern limit of the shaded area has been estimated from calculations of the regional dip along the Angelina-Caldwell flexure. White areas within the black represent the fields from which Comanchean oil or gas production has been obtained.

The concept that the northern border of the Gulf of Mexico is the landward side of the greatest and most actively growing geosyncline on the North American continent is a development largely of the past 10 years[1]. It has resulted in part from geophysical data, in part from the comparatively new study of micropaleontology. All of the 30,000 feet to 40,000 feet of sediments which compose this great geosyncline have been laid down as near shore deposits and their combined weight has depressed the northern border of the Gulf of Mexico to perhaps three times its maximum depth of 12,000 feet. It is not unreasonable to assume that the next few years will see production obtained from late Tertiary beds in South Louisiana at depths in excess of that figure.

Ideas govern actions, and in the petroleum industry most wells are drilled with the idea of reaching known producing horions. In Louisiana the petroleum industry has developed around two main centers of activity: the salt dome region of Southern Louisiana, and the Cretaceous fields in the northern part of the state. Most of the companies operating in the former area have had their headquarters at Houston; those operating in the latter have had Shreveport as their base. The ideas developed in these two petroleum centers have largely governed the exploration and development of their respective areas. Significant events which have affected the petroleum history of Louisiana may be summaried as follows:

The earliest activity in South Louisiana was started at Jennings (1901) where prolific production was found at relatively shallow depth in sands overlying the salt core. This development followed shortly after the epochal Lucas gusher at Spindletop, Tex., where production was obtained from shallow cap rock. In the ensuing 15 years, practically all wells drilled in South Louisiana had cap rock or shallow super-dome sands as their objective.

A. P. I.—The stratigraphy of numerous producing horizons revealed by the discovery of new fields in Louisiana is discussed by the author in a paper delivered before the Southwest meeting of the American Petroleum Institute at Shreveport.

A second epoch in the petroleum development of South Louisiana followed the finding in 1914 of "flank-production" in the sands about the sides of the Sour Lake and Humble domes of coastal Texas. The search for flank production has continued steadily since that date, but acquired added momentum in 1926 by the finding of production below 5,000 feet on the sides of the old Spindletop dome, and by the recognition of "salt-overhang" at Barbers Hill, Tex., in 1929, which was followed shortly after by a similar development on the southeast flank of the Jennings dome, where production was found below 7,000 feet.

The present vigorous development of so-called "deep domes", or domes on which salt is not encountered, came about gradually. While oil was found at Goose Creek, Tex., in 1908, prolific production was not obtained until 1916 when wells were drilled to 3,000 feet. Similarly oil was obtained at Orange, Tex., below 3,000 feet in 1913. It was not until 1924 that oil was obtained at Lockport (3,876 feet). This was followed by the Pure Oil Co. developing production at Sweet Lake below 5,000 feet in 1927. In these fields, most of the oil was middle or upper Miocene in age, and the discoveries did not result in active search for other similar structures. The discovery of so-called "Middle Oligocene" oil at Iowa below 5,000 feet in 1931 created a great deal more interest. This was followed by similar production at Bosco and Roanoke between 7,600 and 9,000 feet in 1934. To the success of the latter fields may be attributed much of the present search for "deep domes".

Fig. 2—Upper Cretaceous

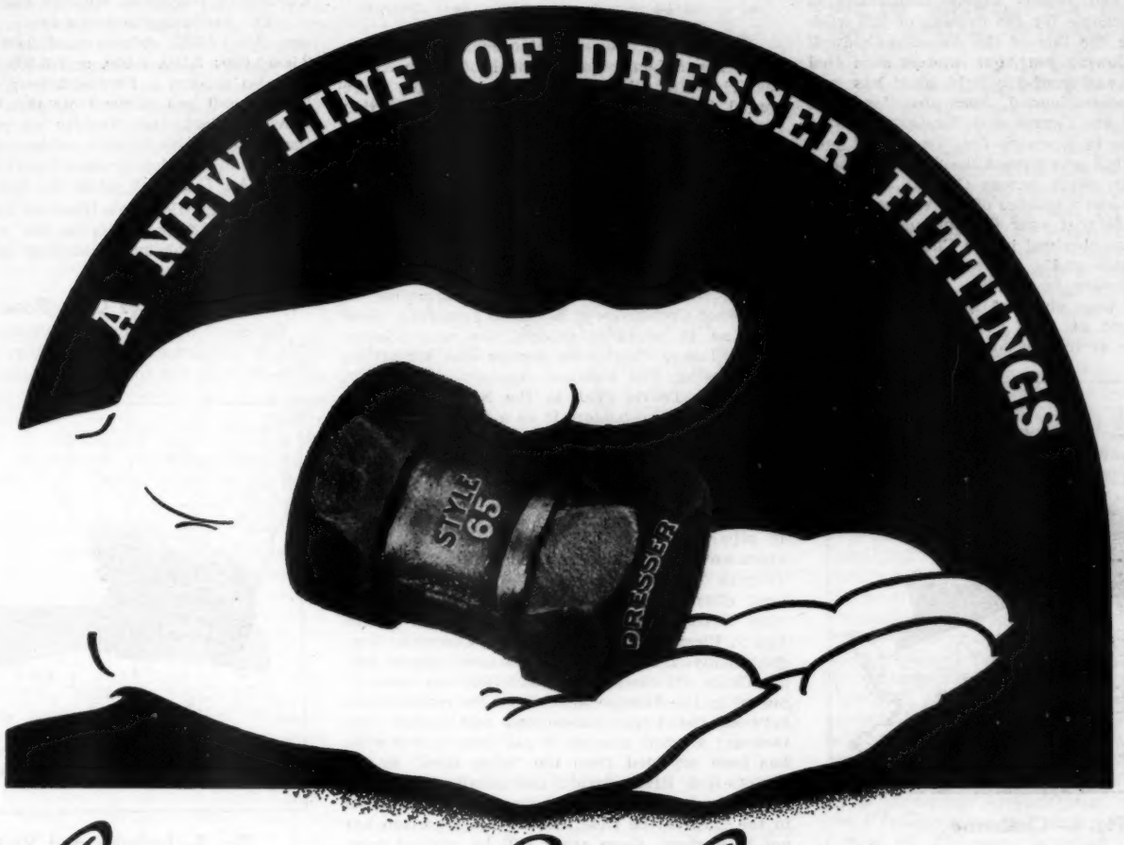
The shaded area shows the portion of northern Louisiana where Upper Cretaceous sediments may be reached by 5,000 to 10,000-foot wells. The southern limit of the shaded area has been estimated from calculations of the regional dip along the Angelina-Caldwell flexure. White areas within the black represent the fields from which Upper Cretaceous oil or gas production has been obtained.

Fig. 3—Sabine (Wilcox)

The dotted area represents the outcrop of the Sabine (Wilcox) group (after Moody). The shaded area indicates the portion of Louisiana where Sabine production is most likely to be obtained. The northern limit corresponds to the region where Sabine sediments tend to change from continental to marine. The southern limit represents an estimate of where the Sabine could be reached by 5,000 to 10,000-foot wells. The white area within the black is the Urania field, where production has been obtained at the unconformity between Claiborne and Sabine groups.

The finding of gas and some oil in the shallow Nacatoch sand at Caddo between the years 1904-1906, followed by the finding of deeper prolific oil sands (2,200-2,275) near the base of the Upper Cretaceous had a profound effect upon the drilling policy of most companies operating in North Louisiana for many years. It resulted in the development of Upper Cretaceous production in the DeSoto-Red River area (1914), Homer (1919), Haynesville (1920), Bellevue (1921), and many other later fields. It was not until 1922 that the drilling of deeper wells developed commercial gas production from the Lower Cretaceous. This was obtained at Pine Island in the Dixie Oil Co. Dillon No. 43 well, and the depth of 3,363 feet was considered great for that time. Subsequent wells discovered oil producing sands both above and below the "Dillon" gas horizon.

This resulted in the drilling of deeper wells in the other known fields and in a number of them Lower Cretaceous production, principally gas, was developed. The realization of vast Lower Cretaceous production from the North Louisiana-South Arkansas area arrived only this past year with the finding of the Rodessa field. The Rodessa oil and gas production has been reported from four sands in the upper 350 feet of the Lower Glen Rose at depths around 6,000 feet; a point well above the base of the Lower Cretaceous. The drilling of 10,000-foot wells in North Louisi-



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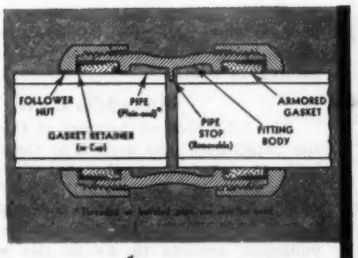

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ia may open up yet more producing horizons. Central Louisiana, lying between the Cretaceous fields on the north and the salt dome belt on the south, has attracted only sporadic attention from either petroleum center until recently. The Urania field, in which production was obtained around 1,500 feet from the contact between the Claiborne and Wilcox Eocene formations in 1925, was responsible for the drilling of 225 wildcat wells along the line of the Angelina-Caldwell flexure the following year, but interest soon died out, and the capacity of the field itself has generally been underestimated. Somewhat later the development of the Conroe and Tomball fields in Texas gave rise to a search for "Cockfield" production from what was termed the "Conroe trend." Leasing activity swept across Central Louisiana into Mississippi and a number of wells were drilled. It was only this past year that production from this horizon was obtained in the Cheneyville field of Rapides Parish and a renewal of activity following the discovery is probable. While excellent production has been obtained in Texas from the Claiborne Eocene at Clay Creek, and from the Jackson Eocene at the Racoon Bend and Humble

Fig. 4—Claiborne

The dotted area shows the outcrop of the Claiborne group (after Moody). The shaded area indicates the portion of Louisiana where Claiborne production appears most likely. The northern limit is drawn south of the Richland gas field, as shows of oil and gas were not reported from that area. The southern limit has been calculated from wells in Beauregard Parish, from the Cheneyville field, and from a deep well near Slidell. The white areas within the black (from north to south) show the Urania, White Sulphur Springs, and Cheneyville fields from which Claiborne production has been obtained.

domes, these fields were too far removed from Louisiana to materially affect drilling procedure.

The voluminous petroleum literature of the Gulf Coast contains but few papers dealing with the stratigraphic occurrence of petroleum. Most reports are devoted to individual fields, and in many cases the producing sands are named for the lease upon which production was found. The only paper devoted primarily to the occurrence of petroleum in North Louisiana was published by Hull[1] 13 years ago. A similar paper on the producing horizons of the Gulf Coast area by Deussen[2] appeared two years ago, but it dealt chiefly with Texas production and used Texas stratigraphic terminology. Probably the most stimulating report dealing with petroleum possibilities of the coastal area was contributed by Barton[3] six years ago. While the author was mainly concerned with estimates of reserves, the stratigraphic occurrence of petroleum received some attention.

The paucity of papers devoted to the stratigraphic occurrence of petroleum is due in part to the inadequacy of subsurface information. In part it is due to the fact that formations encountered in wells have not always been correctly correlated with their surficial equivalents. Much of the difficulty is due to complexities inherent in our system of stratigraphic nomenclature. No one more than the writer of this preliminary report realizes the incompleteness of the information which it affords. He hopes, however, that the maps which accompany it will supply at least a partial picture of the numerous horizons from which accompany it will supply at least a partial picture of the numerous horizons from which future production may be obtained in the 30,000 to 40,000-foot section of sediments which composes the Gulf Coast geosyncline. If this report leads to the publication of more detailed stratigraphic information, his effort will be amply justified, for without accurate knowledge of the exact stratigraphic occurrence of petroleum the location of new fields is both difficult and hazardous.

Comanchean Horizons

Comanchean (Lower Cretaceous) sediments underlie North Louisiana and much of South Arkansas. They are thicker and much more fully represented in the region of the Sabine Uplift than in the eastern part of the state. No monograph of the Comanchean of North Louisiana has as yet been published and information regarding the thickness of the various subdivisions must be obtained piecemeal from scattered publications.

For the region of the coastal plain of Arkansas, the reader will find the recent report by Spooner[3] to be much the most complete and useful. It likewise contains much information on the Lower Cretaceous of Northern Louisiana. However, as in previous reports, the nomenclature of the Lower Cretaceous groups and formations is confusing. For instance, Spooner, on page 28, places the Travis Peak in the Neocomian?; yet, on page 38, he considers it as a part of the Trinity group below the Lower Glen Rose; following which, on page 49, he places both the Travis Peak and Neocomian? in the Trinity.

Oil or gas has been obtained from at least 14 separate horizons of the Lower Cretaceous in 15 separate areas of Northern Louisiana. These areas are shown on the accompanying outline map (Figure 1). They comprise the Caddo (Pine Island district), Red River-Bull Bayou, Haynesville, Bethany, Waskom, Bellevue, Sligo, Cotton Valley, Pleasant Hill, Sugar Creek, Converse, Monroe, Richland, Rodessa, and the new Lincoln Parish fields. Of these, gas production has been reported in the Monroe field[4] from the contact zone between the Upper Cretaceous and Lower Cretaceous; a small amount of gas from a few wells has been reported from the "Glen Rose" in the DeSoto-Red River area[7]; and small oil production from below the Anhydrite has been obtained in the Haynesville field. As the exact horizon has not been given, these areas will be omitted from the discussion which follows. Lower Cretaceous production has likewise been obtained in Arkansas from the Garland City, Mount Holly, and Urbana fields.[8]

Probably the most detailed discussion of the Upper Cretaceous formations encountered in wells in the area of the Sabine Uplift is to be found in the paper by Shearer and Hutson[9] on the Dixie oil pool of Caddo Parish. In the discussion which follows, the Dixie pool is considered with the Caddo field as it is a minor structure associated with the larger producing area and the horizons are similar.

As an aid in showing the horizons from which Lower Cretaceous oil or gas has been obtained in Northern Louisiana, the section in Table 1 is compiled from several of the later reports. Because of the variation in nomenclature used, the source of information is indicated in each instance.

TABLE 1—COMANCHEAN SECTION OF NORTH LOUISIANA AND SOUTHWEST ARKANSAS

	Thickness in feet
Washita Group and Fredericksburg group:	1,600 (plus) in Caddo area[4], p. 188 400 in S.W. Arkansas[5], p. 28.
Trinity Group:	
Upper Glen Rose including "Paluxy"	200 Pine Island[4], p. 170. 760 Cotton Valley[1], p. 7. 850 Homer[4], p. 200. 200-600 Bellevue[6], p. 236. 780 Richland[4], p. 780. 1,700-1,800 N. W. Louisiana and S.W. Arkansas and 1,600, DeSoto Parish, La.[5], p. 48.
Anhydrite zone	450 Pine Island[4], p. 170. 500 Homer[4], p. 200. 500 Bellevue[6], p. 236. 479 Richland[4], p. 780. 500 Cotton Valley[1], p. 7. 561 Bethany[4], p. 780. 600 (plus) S.W. Arkansas[5], p. 47.
Lower Glen Rose	900 Pine Island[4], p. 170. 900 Cotton Valley[4], p. 202. 1,090 Cotton Valley[1], p. 5. 900 Richland[4], p. 780. 1,050 Rodessa[6], p. 32. 900-1,000 S.W. Arkansas[5], p. 46.
"Travis Peak" or "Lower Trinity red shales and sands"	1,800-2,100 Pine Island, Bellevue, Cotton Valley[5], p. 37. 1,000 (plus) Monroe[4], p. 754.
"Neocomian[3] ?"	1,500 (plus) N.W. Louisiana[5], p. 35

See references in appendix.

Washita-Fredericksburg

In the Bethany-Waskom fields, which lie on the Louisiana-Texas line, Craft[11] has reported gas production from the "contact of Upper and Lower Cretaceous, contact of Washita and Fredericksburg ....The producing horizons are....2,300-foot horizon, 2,250-2,350; Adams sand 2,600-2,700; Augurs 2,900-3,000; 3,100, 3,200, and 3,300-foot sands...." He also reports a Fredericksburg gas horizon at Sligo, small gas shows from the Washita in the Converse field, and Washita oil production from the Pleasant Hill field in Sabine and DeSoto Parishes. This field has produced 1,379,635 bbls. of 38° to 42° A.P.I. gravity oil to the end of 1935.

The suggestion has likewise been made that some of the large wells on the western side of the Caddo field have obtained their production from the Washita.[12]

Upper Glen Rose

Spooner[13] has reported a production of 87,265 bbls. of petroleum from the Paluxy sand or Upper Glen Rose in the Garland City district of Arkansas to the end of 1933. The oil ranges from 29.5° to 32° A.P.I. gravity and comes from a depth around 2,900 feet. The 3,200-foot gas horizon at Sligo comes from red beds which are possibly Paluxy in age.

Fig. 5—Jackson and Vicksburg

The dotted area shows the outcrop of the Eocene Jackson group and the lined area the outcrop of the Oligocene Vicksburg group. The shaded area indicates the portion of Louisiana where Jackson or Vicksburg sediments are within reach of 10,000-foot wells. The two small white areas within the black represent the White Sulphur Springs and Clayton fields; the two dark circles to the south of the shaded area represent the Anse La Butte and Sorrento salt domes.

Anhydrite Zone

The 2,700-foot oil horizon at Pine Island[14] and the "Anhydrite" gas horizon at Cotton Valley have both produced from the Anhydrite bed of the Glen Rose. While the "Hill Sand" gas horizon of the new Rodessa field occurs above an occasional stringer of Anhydrite, it is considered in published reports to lie in the upper part of the Lower Glen Rose.

Lower Glen Rose

The upper portion of the Lower Glen Rose has so far been the source of the most prolific Comanchean production. In the new Rodessa[15] field, the "Hill" gas sand; the 80 to 85-foot thick "Gloyd" oil and gas zone; the 15 to 20-foot thick "Dees" oil horizon; and the 40 or more foot thick "Lower Oolitic" or "Young" oil horizon all lie within the upper 350 feet of the Lower Glen Rose. At Pine Island the "2,900-foot" oil horizon is reported by Crider[16] to be a fractured oolitic limestone just below the anhydrite bed. In Cotton Valley the "Davis horizon"[17] which lies at a depth of 4,500 to 4,700 feet, contains two sands productive of oil and gas, named by Ross, the "Tillman Sand Lens," and the "Bodcaw Sand Lens." The "Davis horizon" is reported to be 85 feet thick and to lie 35 to 40 feet below the base of the Anhydrite. Gas production at Bellevue comes from about 270 feet below the Anhydrite[18]; the deeper gas horizon at Richland, called "Eubanks sand"

has been reported to lie near the top of the Lower Glen Rose; as does the gas production of the Sugar Creek field[20] and the new field in Lincoln Parish. The previous "Glen Rose" gas production at Sligo, obtained between 4,100 and 4,300 feet, came from the upper part of the Glen Rose[21], but the recent Pettit No. 1 well of the Producers Oil & Gas Co.[22], which obtained wet gas from 5,199 feet, is apparently producing from near the base of the Lower Glen Rose. A production of 112,509 bbls. of petroleum has been reported from the upper part of the Lower Glen Rose in the Mount Holly district[23] of Arkansas.

The lower part of the thick Lower Glen Rose is likewise a source of production. The "Dillon" gas horizon around 3,600 feet, and 90 feet below it, the "Dixie" oil horizon in the Pine Island field[24], both lie near the base of the Lower Glen Rose. It is possible also that the lower part of the formation will produce at Rodessa[25], as favorable shows of oil and gas have been reported in the lower 350 feet.

Travis Peak

The "Herndon" oil sand which lies between 3,900 and 4,000 feet in the Pine Island district[26] has been reported to be near the top of the red non-marine section of the Trinity which Spooner correlates with the "Travis Peak." In the Urbana[27] district of Arkansas, 1,118,221 bbls. of 19° to 20° A.P.I. gravity oil had been produced to the end of 1933 from a sand in the Travis Peak formation.

Upper Cretaceous

So many wells have been drilled in the region of North Louisiana and Southern Arkansas in search of Upper Cretaceous petroleum or natural gas during the past 30 years that the reader might assume that a standard correlation table of formations had been established years ago. Such is not the case. The work of Dane[28] on the Upper Cretaceous outcrops in Arkansas, just a few years ago, radically changed the subsurface nomenclature in both Arkansas and North Louisiana. More recently the finding of the East Texas field, with its "Woodbine" production made it appear doubtful whether the productive sands of North Louisiana formerly called "Woodbine" were really of that age. Spooner[29], in the latest and most comprehensive report on Southern Arkansas, suggested that the "Woodbine" of Dane corresponds to the Tuscaloosa formation of Mississippi and should be, in part, correlated with the Austin formation of Texas. The lower part of Dane's "Woodbine" consists of sands and clays to which Spooner has applied the descriptive phrase "basal Upper Cretaceous red beds". As the nomenclature of the Upper Cretaceous has changed materially in recent years, and as the formations change in thickness and character from the region of the Sabine Uplift east to Richland, and south from Caddo to Zwolle, the writer has included a table (see Table 2) to indicate the formations from which production has been obtained; again indicating the sources of his information.

Nacatoch

The first gas production in Louisiana came from the famous "gas rock" of the old Caddo field at depths of 800 to 1,000 feet. The "gas rock" was the drillers' term for the Nacatoch. It was used in the logs of nearly all of the early wells drilled over the area of the Sabine Uplift down to about 1920. It produced gas in the old Shreveport field[30] at depths around 740 feet; at somewhat similar depths in the Cedar Grove field; at depths between 600 and 800 feet in the DeSoto-Red River area[31]; 800 to 900 feet in the Elm Grove field; around 1,000 feet in the Bethany and Waskom areas; and around 883 feet at Sligo[32].

The Nacatoch was likewise the source of petroleum in the Hosston area of the old Caddo field. It produced some oil in the old "Pelican district"[33] of southern DeSoto and northern Sabine Parishes. It has produced more than 9,000,000 bbls. of 19° to 20° A.P.I. gravity petroleum in the shallow Bellevue field from depths of around 400 feet,[34] and has been the main producing horizon of the famous Homer field.[35] In the Homer field, the Nacatoch produces in the sandy upper 150 feet of the formation at depths between 675 and 1,150 feet.

The Nacatoch has likewise been productive of

TABLE 2—UPPER CRETACEOUS SECTION OF NORTH LOUISIANA

	Thickness in feet
Arkadelphia Clay	80-100 Caddo[a], p. 188. 90-125 Homer[b], p. 200. 40 Bellevue[c], p. 235. 100 Cotton Valley[d], p. 7. 75 Monroe[f], p. 744.
Nacatoch Sand	200-300 Caddo[a], p. 188. 250 Homer[b], p. 200. 325 Bellevue[c], p. 235. 370 Cotton Valley[d], p. 7. 75 Monroe[f], p. 744. 150 Haynesville[e], p. 8.
"Chalk Series" or "Chalk Rock"* Saratoga chalk Marlbrook Marl Annona chalk	200 Monroe[f], p. 744. 70 Richland[g], p. 775. 530 Zwolle, pp. 3, 4. 475-500 Caddo[a], p. 188. 300 Cotton Valley[d], p. 7. 333 Bellevue[c], p. 235. 305-325 Homer[b], p. 200.
Ozan, including Buckrange sand	200-225 Caddo[a], p. 188. 275 Homer[b], p. 200. 225 Cotton Valley[d], p. 7. 275 Bellevue[c], p. 235. 280-320 Zwolle[h], pp. 3-4. 300 Richland[g], p. 775. Not present in Monroe field[f], p. 745.
Brownstown Marl† Tokio† "Woodbine"† (in part)	540 Caddo[a], p. 188. 650 Homer[b], p. 200. 600 Bellevue[c], p. 235. 480-520 Zwolle[h], pp. 3-4. 790 Cotton Valley[d], p. 7. 370 Richmond[g], p. 775. Brownstown and Tokio missing in Monroe area; "Woodbine" equivalent 450[f], p. 745.
Ector Tongue of Austin Chalk	100 Zwolle[h], pp. 3-4.
Eagleford	100 Zwolle[h], pp. 3-4.

*Undifferentiated in most fields. Called "Monroe gas rock" in Monroe and Richland fields. The upper 80 feet in Zwolle field is called "Zwolle marl".
†Undifferentiated in many reports.
See references in appendix.

oil or gas in Arkansas from the following fields: Smackover, 2,000-2,100 feet; El Dorado, 2,100 feet; East El Dorado, 2,150 feet; Lisbon, 2,175 feet; Woodley, 2,250 feet; Stephens, 1,500 feet; and Irma, 1,150 feet.[36]

The "Chalk-Series"

In most petroleum reports describing the oil and gas fields of Northern Louisiana, the Saratoga, Marlbrook and Annona formations have been grouped together because of lithologic similarities. In drillers logs they are usually referred to as "chalk rock".

Fletcher[37] has reported some oil production from the "Chalk Rock" of the Caddo area. Craft[38] has likewise reported some similar production in the Red River-Bull Bayou area. In the Zwolle area it is the main source of production. The upper 80 feet is called the "Zwolle marl" and is correlated by Heithecker[39] with the Saratoga. Oil has been obtained throughout the 500-foot chalk section of this field, but 45 per cent of the wells obtained their production within the upper 100

Fig. 6—Catahoula

The shaded area indicates the portion of Louisiana where the Discorbis, Heterostegina, and Marginulina zones are most likely to produce oil. The northern limit of the shaded area represents in a necessarily generalized manner the inner extent of sufficient marine deposition during Catahoula time to make prospecting favorable. The southern limit is placed where the Discorbis zone should be reached in 9,000 to 10,000-foot wells. The white spots within the shaded area represent the field from which Discorbis, Heterostegina, or Marginulina production has been obtained.

feet. Production is likewise reported by Craft[40] from this horizon in the Converse field.

In the eastern part of North Louisiana, these chalks are usually referred to as the "Monroe gas rock". It is the source of most of the gas in the great Monroe field at depths of 2,050 to 2,300 feet, and in the Epps field between 2,300 and 2,400 feet. The "Monroe gas rock" also produces some natural gas in the northwestern part of the Richland field.[41]

Ozan, Including Buckrange

The terms "Ozan" and "Buckrange" are of comparatively recent vintage, having been introduced by Dane[42] in his study of the Cretaceous outcrops of Arkansas. In most of the early reports, the name "Blossom" corresponds to the present "Buckrange" and was used for the sand body in the lower part of the Ozan. This sand body has likewise been given local names in some fields, such as the "Oakes" sand at Homer.[43] In some fields, however, the Ozan production does not appear to come from the base of the formation, hence has merely been referred to in the literature as "Ozan" production.

This is one of the most productive oil horizons of the Upper Cretaceous of North Louisiana and has been an important source of natural gas in several fields. Fletcher[44] reports some oil production from the Ozan in the Caddo area. Craft[45] has carefully tabulated production statistics from this horizon in the following fields: Lake Bistineau, Ozan (gas) around 2,000 feet; Bethany-Waskom, Buckrange (gas) around 1,950 feet; Elm Grove, Ozan (oil) around 1,550 feet; Homer, "Oakes sand" or Buckrange (oil) around 2,000-2,100 feet; Haynesville, Buckrange (oil) around 2,800 feet; Shongaloo, Buckrange (oil) around 2,665 feet; Bellevue, Buckrange (gas) around 1,000 feet; Sligo, Buckrange (gas) around 1,700 feet; Spring Hill-Sarepta, Buckrange (oil and gas) around 2,700 feet; Cotton Valley, Buckrange (oil and gas) around 2,500 feet; Carterville, Buckrange (little oil and gas) around 2,700 feet; and Converse, Ozan (possibly "Wolfe City sand") (oil) around 2,010 feet.

In Arkansas, Spooner[46] has pointed out that the Ozan contains two sands which are productive of oil. The upper is called the Meakin sand, which produces 26° to 28° A.P.I. gravity oil in the Smackover field at depths between 2,050 and 2,200 feet. It also produces some oil in the El Dorado field around 2,500 feet. The lower, Buckrange, or as it is locally known "Graves sand", has produced oil around 2,300 feet at Smackover, around 2,100 feet in the Stephens field, and around 2,800 feet in the Bradley field.

"Brownstown," Tokio, "Woodbine"

While the "Brownstown," Tokio, and "Woodbine" formations are discussed separately in the geologic reports of the fields of Northern Louisiana, the three are grouped together, but without a group name, when estimates of thickness are given. Both the terms "Brownstown" and "Woodbine" are used in the reports in a different sense from that implied by their original definitions.

The "Brownstown" of later reports is the clayey, usually non-productive upper 70 feet[47] to 200 feet.[48] The "Woodbine" of these reports refers to the sands at the base of the section and is usually considered to have a thickness of less than 50 feet, but in the Monroe section,[49] the "Brownstown" and Tokio are reported missing, and the "Woodbine" is given a thickness of 450 feet. Craft[50] in his recent paper on oil and gas in Louisiana has placed the producing sands of this group of formations under the term Tokio and has omitted the "Woodbine" of earlier reports or has used the expression "basal Upper Cretaceous".

The "Woodbine", "basal Upper Cretaceous", or Tokio was the main oil producing horizon over the greater part of the old Caddo field at depths around 2,200 feet. Fletcher[51] considered that the "Woodbine" production came from "probably three horizons in Upper Cretaceous and Comanche." These sands were the most important source of production in the Caddo area. The "Woodbine" also was the main producing horizon in the Red River-Bull Bayou area,[52] the fields of which had produced more than 55,000,000 bbls. from depths of 2,450 to 2,550 feet by the end of 1935. Matson reported a deeper gas sand at 2,650-2,750 feet. The

Tokio has likewise produced gas around 3,080 feet, and some oil around 3,143 feet in the Carterville field; gas around 1,900 feet and some oil around 2,400 to 2,500 feet in the Elm Grove field; some gas at Sligo around 2,445 feet; gas in the Spring Hill-Sarepta area around 3,059 feet and oil around 3,143 feet; and is the main gas horizon of the important Richland field,[33] where the Tokio lies unconformably beneath the Midway Eocene.[34]

Eagleford

Eagleford sediments are reported in Louisiana only from the southern part of the Sabine Uplift and terrane immediately adjacent. Craft[35] reports the production of the Holly field in DeSoto Parish to be of Eagleford age. This field had produced 805,745 bbls. of 38° to 45° A.P.I. gravity oil to the end of 1935.

Eocene Horizons

The Angelina-Caldwell flexure separates Northern Louisiana, with its numerous Cretaceous fields, from Central and Southern Louisiana in which areas the oil production is of Tertiary age. North of this "flexure" Cretaceous formations lie at relatively shallow depths and are gently folded into the broad Sabine Uplift on the west and Monroe Uplift on the east. On each uplift are smaller, sharper folds which have served for the localization of oil and gas deposits. The depressed area between these major uplifts contains the salt domes of North Louisiana as well as a number of other structures on which salt has not been encountered.

Southward from the Angelina-Caldwell flexure, in that portion of Louisiana west of Mississippi River, the regional dip of the Tertiary formations is to the southeast at a rate of from 100 feet per mile to probably more than 200 feet per mile, and the Cretaceous formations are depressed under the thick accumulation of Eocene and younger sediments. The position of the Angelina-Caldwell flexure appears to coincide remarkably with the position of the Sabine (Wilcox) shoreline. While Eocene formations mantle the surface of most of Louisiana north of the Angelina-Caldwell flexure and attain considerable thickness in the southern part of the interior salt dome basin, they are quite largely continental and have not produced oil in

Fig. 7—Middle Miocene

The shaded area indicates the portion of southern Louisiana most likely to produce oil from Middle Miocene sediments. The northern limit represents an estimate of the landward extent of one or more of the Middle Miocene shorelines. The southern limit is placed where the Area zone of the Choctawhatchee should be reached in 9,000 to 10,000-foot wells. The white spots within the shaded area represent the fields from which Area zone or Shoal River production has been obtained.

appreciable quantities. The Urania field is on a terrace on the Angelina-Caldwell flexure. It is along this flexure and in the region to the south of it that important Eocene production may be expected.

East of Mississippi River, that portion of Louisiana known as the "Florida Parishes" is dominated by a structural feature similar to the Angelina-Caldwell flexure. This "flexure" the writer purposes to term the Mobile-Tunica flexure, as it begins along a line which extends from the mouth of Mobile Bay to the Tunica Hills of Wilkinson County, Mississippi and the northern part of the Feliciana Parishes of Louisiana. Toward its western end, this flexure broadens somewhat, but across Southern Alabama, Southeastern Mississippi, and the Louisiana Parishes the line is very sharp. North of it the Tertiary formations have a gentle coastward dip of around 20 to 35 feet

Fig. 8—Upper Miocene

The shaded area indicates the portion of Louisiana where Upper Miocene production is most likely to be found. The three white spots in southwestern Louisiana represent salt domes which produce from the Potamides Matsoni zone. The others represent salt domes from which marine Upper Miocene production is obtained.

per mile and, with the exception of the Sabine (Wilcox), are comparatively thin; south of it the dip becomes 100 to 200 feet per mile, a feature which continues to the tip of the Mississippi delta, and the formations thicken prodigiously. The significance of this line is apparent on any good, contoured topographic map of the Gulf Coastal region.[36] On it, the 500-foot contours of the Tunica Hills and nearly the entire region of Wilkinson and Adams Counties, Mississippi, are seen to stand in bold relief to the lowlands of Louisiana, and even to the central portion of Mississippi. The relief is so great as to suggest strongly that there has been recent upward movement of the terrane lying north of the flexure; the movement being greatest near its western terminus. Such movement need not be surprising, for it would afford partial compensation for the tremendous downwarp of the lower delta region necessitated by Mississippi sedimentation.

While the Mobile-Tunica flexure is not productive of oil at present, its similarity to the Angelina-Caldwell flexure is so great that one may expect structures along it similar to the one which has formed the Urania field.

Midway

In Louisiana the Midway is a dark clay with occasional beds of sand and marl. Its thickness ranges from 550 feet[37] to 700 feet[38] in the Caddo area; is 450 feet in the Homer[39] field; 600 feet in the Richland[40] field, and 500 feet to 550 feet in the Zwolle area.[41]

While little oil has been produced from the Midway,[42] the unconformity at the base of the formation finds the impervious dark clays in contact with the eroded edges of older formations. It thus forms the cap over the "Monroe gas rock" in the Monroe field; over both the Upper Cretaceous Tokio formation and the Lower Cretaceous "Eubanks" sand of the Lower Glen Rose in the Richland field; and seals the porous "Zwolle marl" of the Zwolle field. Folding and erosion affected many places in Northern Louisiana before the time of Midway deposition. It is probable that other localities will be found where the productive sands of the Cretaceous or Comanchean are truncated by this unconformity.

Sabine (Wilcox) Group

The Sabine group mantles the surface of the Sabine Uplift in Northwestern Louisiana.[43] In that area it is continental and has a thickness of from 300[44] to 500[45] feet, but from the DeSoto-Sabine Parish line southward it increases in thickness with astonishing rapidity and quickly becomes marine. The Sabine (Wilcox) shoreline appears to correspond to the line of the Angelina-Caldwell flexure, and Moody[46] has shown how the thickness reaches fully 3,000 feet in Central Louisiana.

It is rather surprising that the Sabine has not attracted more attention as a possible source of petroleum. In that part of Sabine Parish, where the marine facies of it is exposed, numerous oil seepages have been reported. In the vicinity of Negreet, wells drilled a number of years ago encountered more than 2,000 feet of sediments which contained many shallow water marine beds, from some of which shows of oil and gas were reported. However, the only commercial Sabine production obtained in Louisiana as yet has been from the Urania field in LaSalle Parish. In this field the principal production has been obtained at the contact between the Cane River (basal Claiborne) and Sabine (Wilcox),[47] though shows of oil and gas were obtained in wells about 570 feet below the contact.

The Arkansas Fuel Oil Co., Urania No. F-5, in section 24, Township 10n, Range 1e, drilled to a depth of 6,463 feet, is the one deep well of the Urania field. While it did not produce, it logged a very thick Sabine section, in which lime was encountered with great regularity, and lignite only a few times. The shoreline appears to have been north of Urania for a considerable part of Sabine time.

In coastal Louisiana commercial accumulations of petroleum appear to be definitely associated with shoreline sediments. On Figure 3 the writer has indicated in black the areas which he considers most likely to contain accumulations of Sabine oil. He has drawn the northern limit approximately along the Sabine shoreline, which corresponds fairly well with the contour representing 2,000 feet of thickness for the formation. He has placed the southern limit where the formation should be reached by 8,000 to 10,000-foot wells. Its position necessarily has been deduced from regional dips of the younger Claiborne and Jackson formations encountered in wells.

Claiborne Group

If one disregards an irregular veneer of Pleistocene and Recent deposits, the Claiborne group may be said to mantle nearly all of that portion of Northern Louisiana which lies east of the Sabine Uplift, north of the Angelina-Caldwell flexure and west of the Ouachita River. In this area and in wells along the Angelina-Caldwell flexure the Claiborne group has been divided on litholo-

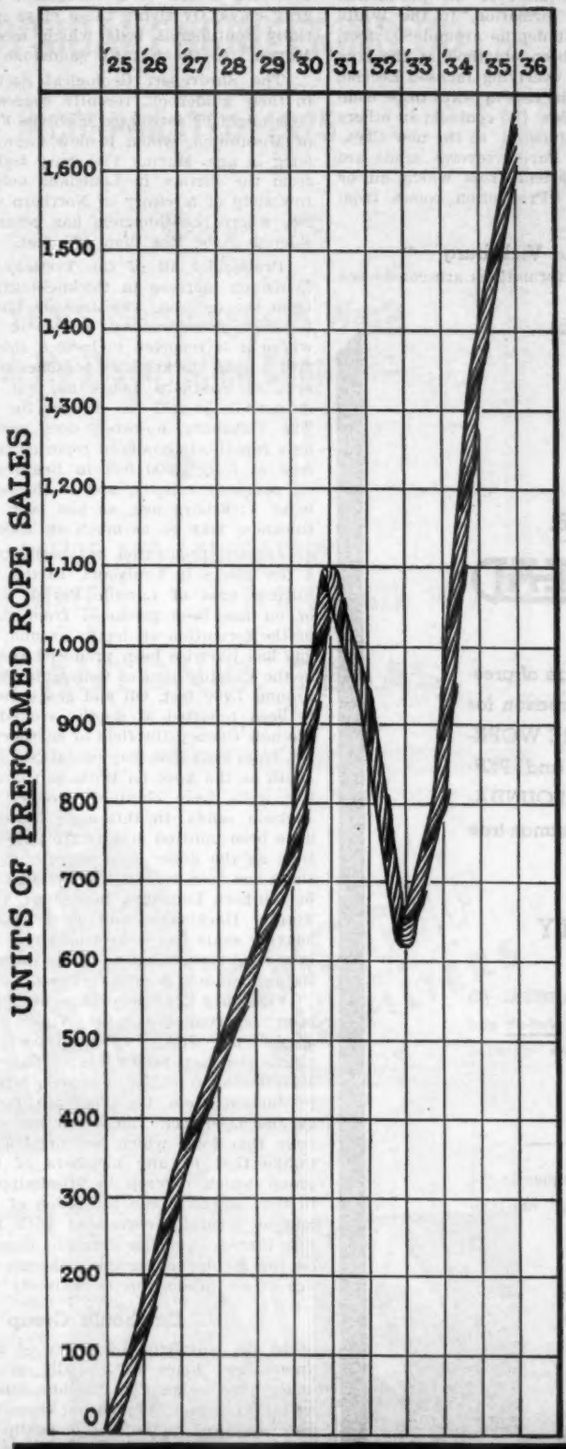
Fig. 9—Pliocene

The shaded area represents the portion of Louisiana from which Pliocene production is most likely to be obtained. The white spots within the black represent the domes from which Pliocene production has been reported.

gic grounds into the following formations: Cockfield (continental sediments) 200-500 feet; Cook Mountain (marine clay and glauconitic sand) 100-350 feet; Sparta (continental sands and shales) 400-700 feet; Cane River (marine clays and green sand) 100-600 feet.

The smaller figures given above refer to the outcrop thickness in the region of Bienville and Winn Parishes; the larger figures to the thickness encountered in wells in Catahoula Parish.[48] The thickness of the Claiborne is believed to increase to considerably more than the above figures in the territory lying south of the Angelina-Caldwell flexure, attaining perhaps 3,000 feet.

As in the case of the Sabine group, the territory where Claiborne production may reasonably be expected is still largely untested. This area is



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indicated in black on the accompanying map, Figure 4. The limits given are only approximate. The writer has placed the northern limit at the contact with the overlying Jackson Eocene from the Sabine River to the Ouachita because of the showings reported from the Cane River, Sparta, and Cockfield in wells in the Urania field.[69] East of Ouachita River it is continued south of the Richland field, as the Claiborne has not shown signs of production in that area. The southern limit is drawn where the Cockfield should be encountered in wells drilled to depths of 8,000 to 10,000 feet. In Western Louisiana, the position of this line is governed by recent deep wells in Beauregard Parish; in Central Louisiana, by taking the regional dip south from the Cheneyville field; in the Florida Parishes by calculations from a recent deep well drilled near Slidell. In the northern half of the area, production may be expected on structures from the Cane River and Sparta formations. In the southern half, production is most likely in the Cockfield. This formation, which is continental on the outcrop, has changed in large part to shallow water marine sediments in the Cheneyville area.

Claiborne production has been obtained in Louisiana from only three fields. In the Urania field, it occurs at depths between 1,500-1,600 feet at the contact between the basal Cane River and the underlying Sabine, with most of the production coming from the latter formation. In the White Sulphur Springs area, at depths around 800 feet, limited production has been obtained at the contact of the Cockfield and overlying Jackson Eocene. In several wells the production appears to be coming from immediately below the contact; in others it comes from the basal Jackson. In the new Cheneyville field of Rapides Parish several sands are encountered in the Cockfield from which oil or gas has been reported. Production comes from around 5,700 feet.

Jackson and Vicksburg

These two groups of formations are considered together solely because of the limited information available concerning their subsurface possibilities. In the area where it outcrops, the Jackson has been assigned a thickness that ranges from 400 feet to 600 feet in numerous reports. On the outcrop it consists of basal marls containing considerable green sand to a thickness of from 10 to 30 feet, overlying which is a succession of very sticky gray clays. Overlying these clays are sandy, partially continental beds which were referred by Matson[70] to the Fayette sandstone of Texas.

The Shreveport Geological Society,[71] however, in their guidebook, recently suggested that these beds might be correlated with the Forest Hill sand of Mississippi, which is now known to be Vicksburg in age. Marine Vicksburg beds are reported from the surface in Louisiana only from a narrow strip of territory in Northern Catahoula Parish, where the thickness has generally been considered to be less than 100 feet.

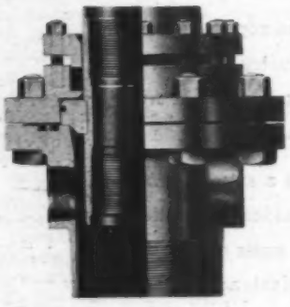
Practically all of the Tertiary formations of Louisiana increase in thickness rapidly down-dip from the outcrop. The Jackson has been encountered on numerous salt domes in coastal Texas, where it is reported to have a thickness of 1,500 feet[72]. Such thickness is possible in the salt dome area of Southern Louisiana, but evidence from deep wells is still too meagre for definite proof. The Vicksburg, however, does increase in thickness rapidly. It has been reported to have a thickness of fully 2,000 feet in Beauregard Parish in oil company reports, and if the so-called "Frio" is of Vicksburg age, as has been suggested, the thickness may be as much as 3,000 feet.

Jackson production has been obtained at only a few places in Louisiana. In the White Sulphur Springs area of LaSalle Parish a small amount of oil has been produced from the basal sands of the formation at depths around 800 feet. Some gas has likewise been produced from the Jackson in the Clayton area of Concordia Parish at depths around 1,400 feet. Oil and gas shows have recently been reported at depths around 5,000 feet in the new Cheneyville field of southern Rapides Parish, from beds that may be Jackson in age. Farther south on the Anse La Butte salt dome, a few shallow wells have obtained production from basal Jackson sands. In this case, however, the sands have been uplifted greatly from their normal position, as the dome is a piercement type. Heaving shale has been reported[73] from a number of domes in Southern Louisiana including: Vinton, Edgerly, Starks, Hackberry, and East Hackberry. This heaving shale has been considered Jackson in age in several reports but as far as the writer is aware its age has not been determined paleontologically.

Vicksburg ("Lower Oligocene") production has been reported from the Vinton and Jennings domes[74] but Craft,[75] in his report of later date, places the deep production of these domes in the Marginulina zone. He, however, reports Vicksburg production from the Sorrento dome at depths around 4,300 feet. The writer has examined cores from this dome which contained a marine fauna unlike that of any members of the Vicksburg group which outcrop in Mississippi, but similar to that of the Meson formation of Mexico, a formation generally correlated with the Vicksburg. For that reason the Sorrento dome is indicated on the accompanying map, though the Vicksburg age of its production is obviously doubtful.

Catahoula Group

In the petroleum literature of the Gulf Coast area, these zones are usually grouped together under the designation "Middle Oligocene". The writer,[76] however, pointed out three years ago that they appeared to be the down-dip equivalent of the Catahoula group. The Catahoula has been considered Miocene in age by the U. S. Geological Survey and is correlated with the Chattahoochee and Tampa limestones of Florida. This correlation was greatly strengthened the year following by the description of the Upper Chickasawhay, Lower Chickasawhay, and Bucatunna members of the Catahoula in the region of Wayne County, Mississippi.[77] At the same time it was shown that in Eastern Mississippi, the Heterostegina zone occurs in wells some 250 feet above the Chickasawhay members. As the Chickasawhay members carry a microfauna quite similar to that of the Marginulina zone, and as the Upper Chickasawhay grades directly into the continental Catahoula, the con-



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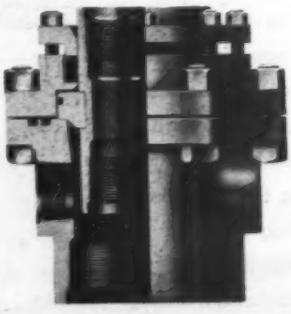

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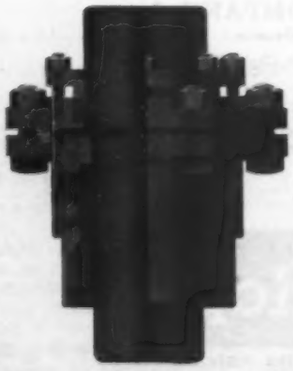

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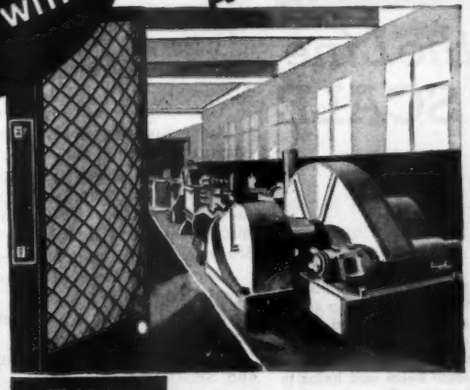

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clusion appears inescapable that at least the Heterostegina zone is Catahoula in age.

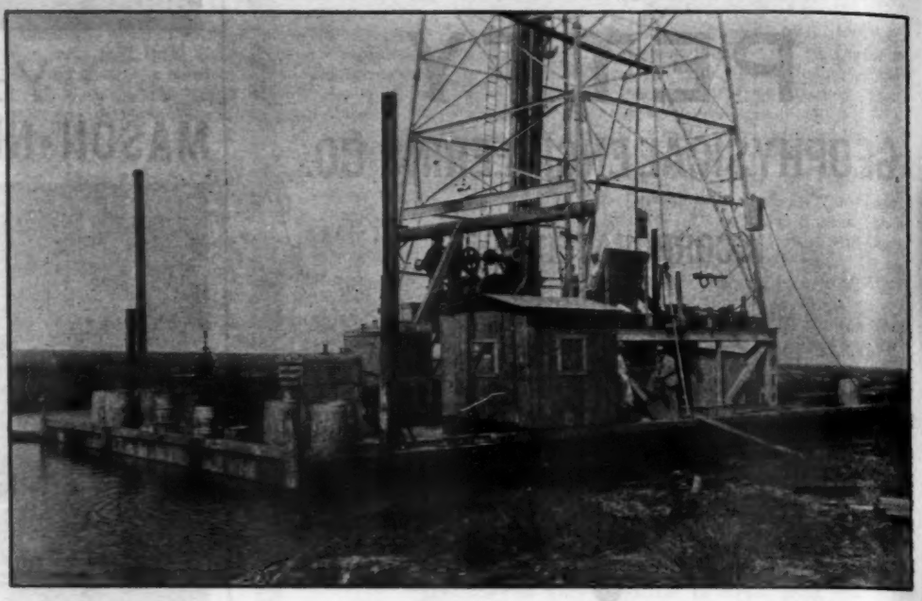
In addition to these three marine zones, the term "Frio" has been used recently in reports for unfossiliferous beds overlying the Vicksburg in well sections of Southwestern Louisiana. In many cases the reported "Frio" appears to be a continental equivalent of the Marginulina zone. The writer has, therefore, grouped the "Frio" of company reports with the Marginulina zone in the discussion of production which follows.

The writer considers the Catahoula formation of Louisiana and Western Mississippi, to be a great deltaic deposit built out into the Lower Miocene Chattahoochee or Tampa sea. The Discorbis, Heterostegina, and Marginulina zones are coastward, down-dip, marine equivalents of the Catahoula delta. In the region lying between the Catahoula outcrop and the coastal salt domes the interfingering of marine and continental sediments is naturally irregular and, in the present state of our knowledge, somewhat unpredictable. On the accompanying map, Figure 6 the northern line of the shaded area represents, in a necessarily generalized manner, the inner extent of sufficient marine deposition during Catahoula time to make prospecting favorable. This line crosses Louisiana from Southern Beauregard Parish, in a northeasterly direction toward Covington and Wayne Counties, Mississippi. It necessarily lies to the south of Angola in West Feliciana, Parish, for a deep well drilled there some years back failed to encounter marine horizons in the Catahoula. The southern limit is placed where the Discorbis zone should be reached in 9,000 to 10,000 foot wells. This limit has been calculated in Western Louisiana from the depth at which it is found at Iowa. In Central Louisiana, the Bosco dome was used. In Southeastern Louisiana the position of the line was calculated from the depth to the Heterostegina zone in a deep well near Slidell. In the area which has been indicated in black, the combined thickness of the three zones varies from around 1,500 feet to more than 2,500 feet; the Marginulina zone representing at least the lower two-thirds of the total. The greatest thickness at present appears to be in the area between Bosco and Roanoke, but much of the area is as yet undrilled.

Craft[25] has reported Discorbis zone production from Bosco; Heterostegina zone production from Bosco, Lockport, Sulphur, Black Bayou, Iowa, and Roanoke; Marginulina zone production from Bosco, Jennings, Vinton, Port Barre(?), Iowa, Roanoke, and the Gillis area (including English Bayou). The recently discovered Tepetate and Bayou Mallett fields are likewise producing from the Marginulina zone. "Middle Oligocene" production has likewise been reported from Starks,[26] but the exact horizon was not given.

The Starks, Sulphur, Black Bayou, Jennings, Vinton, and Port Barre domes are piercement-type and the Discorbis, Heterostegina and Marginulina zones are encountered about the sides of the salt stock. The other domes mentioned belong to the deep-seated type, and production in most cases comes from between 6,000 and 9,000 feet.

DRILLING EQUIPMENT AFLOAT IN MARSHES



Light gasoline engine powered drilling barge in southeastern Louisiana marsh field

◆ ◆ ◆ ◆

Middle Miocene Horizons

It has been customary in the petroleum reports dealing with southern Louisiana to refer to the section lying below the "Citronelle" gravels and above the Discorbis zone as "Fleming" or simply as Miocene. Only recently has it been realized that this interval represents from 5,000 to perhaps more than 8,000 feet of sediments in the region of the lower Mississippi delta. These sediments were grouped together principally because detailed paleontologic studies of Miocene microfaunas were not available, and much of the section back from the coast is only sparsely fossiliferous. The recent publication of two bulletins by the Florida Geological Survey describing Foraminifera[27] and Ostracode[28] have made it possible to determine in many fields the part of the Miocene from which production is obtained. Unfortunately the writer at present does not possess sufficient information to definitely establish the horizon from which production is obtained in some fields, and in others which produce from several horizons in the Miocene and Pliocene, he can establish the age of only certain horizons. In the southwestern part of the state this is due to the fact that in the northern half of the area shown in black, Figure 7, the middle Miocene is largely brackish water and is only sparsely fossiliferous. However, he believes that enough information is available at present to justify the separation which is here given, and to justify the preliminary maps which show the distribution as he knows it.

Cushman and Ponton's paper[29] contains an excellent summary of the zonation of the Florida Miocene. In it the middle Miocene is divided into:

Area zone of the Choctawhatchee formation (with two subdivisions).

Yoldia zone of the Choctawhatchee formation.

Shoal River formation (with three minor subdivisions).

Oak Grove sand (with two subdivisions).

In examining cores from the salt domes of coastal Louisiana, the writer has not as yet found it possible to subdivide the middle Miocene with the minuteness that has been done in Florida. The most useful microfossils for the recognition of middle Miocene sediments, ranging in Florida Miocene, in the region of coastal Louisiana are:

Bigenerina floridana Cushman and Ponton—Shoal River and Oak Grove.

Robulus vaughani (Cushman)[30]—Area zone and Shoal River.

Robulus americanus (Cushman)[30]—Area zone and Shoal River.

Siphonina cf. S. jacksonensis, var. limbosa Cushman—Shoal River.[30]

Bolivian floridana Cushman — Area zone and Shoal River.

Virgulina pontoni Cushman — Shoal River to Chipola.

Cytheridea floridana Howe and Hough—Area zone.

Cytheridea subovata Ulrich and Bassler—Shoal River.

It is difficult to separate the Oak Grove from the Shoal River by means of Foraminifera, even with the large faunas available from surface outcrops. The logs of many wells in Southern Louisiana, however, show considerable sand below the

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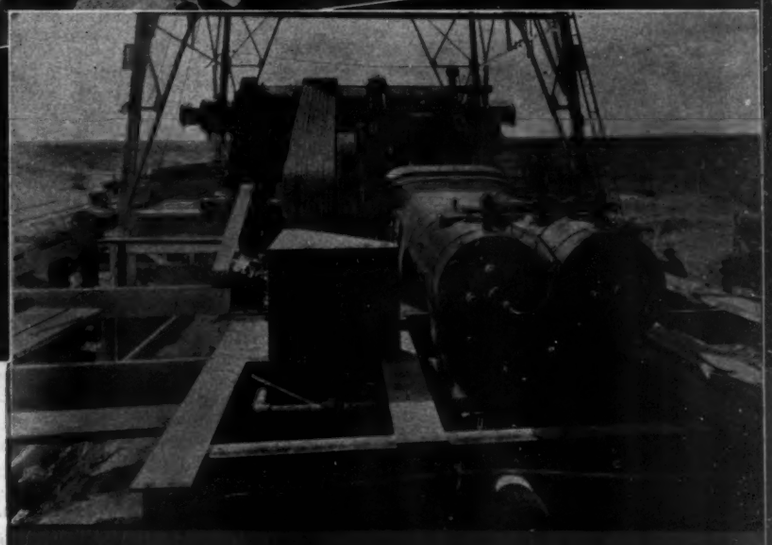

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Bigenerina horizon and above the Discorbis zone, which may correspond to the Oak Grove of Florida.

Middle Miocene production has been obtained from the following domes: Cameron Meadows (Arca zone) between 6,000 and 7,000 feet; East Hackberry (Shoal River) around 7,000 feet; Sweet Lake (Shoal River) around 6,600 feet; St. Martinsville (Shoal River) around 5,600 feet; Darrow (Shoal River) around 5,600 feet; Sorrento (Arca zone) around 4,300 feet; Jeanerette (Shoal River) around 7,500 feet; and Lafitte (Arca zone?) around 9,600 feet. Strong shows of oil were obtained from the Arca zone below 9,000 feet on the southwest side of the Gueydan dome.

Deep production at White Castle, around 8,900 feet, is coming from below the Arca zone, but the exact horizon is not known. In addition to the fields listed, it is probable that some of the productive horizons at Starks, Sulphur, Lockport, Iowa and other fields in Southwestern Louisiana are of middle Miocene age.

The middle Miocene sediments are probably not much over 2,000 feet in thickness in the northern part of the area indicated on the accompanying map. However, they thicken rapidly coastward, and recent evidence suggests that they are over 4,000 feet thick in the lower part of the Mississippi delta.

Upper Miocene

The Choctawhatchee formation of Florida is considered by the Geological Survey of that state to represent all of the upper Miocene and a portion of the middle Miocene. It is divided into a number of zones, some of which have been mentioned previously. The portion of the formation assigned to the upper Miocene[35] comprises: Cancellaria zone (divided into upper and lower members) and Ecphora zone (divided into upper and lower members).

In this report no attempt is made to distinguish the separate zones according to the Florida system of nomenclature, but the Potamides matsoni zone of Southwestern Louisiana is considered the brackish water equivalent of the Cancellaria zone.

The snail Potamides matsoni and a number of other brackish water shells were described by Dall[36] 23 years ago from a hand dug well in section 28-3n-2w, which point is only a few miles southwest of Alexandria, La. This fossil attracted little attention until the discovery of the Lockport field in 1924, where it was found abundantly in cores from the producing formation at depths between 3,500 feet and 4,000 feet. It has been reported since then from only a few other areas, but the Potamides matsoni zone can be recognized in cores, even if the snail is not present, by means of the microfauna which accompanies it. The commonest of these microfossils have recently been described by Stephenson,[37] who pointed out that this zone occurs below, not above, the Rangia johnsoni zone, which zone has customarily been referred to the top of the Miocene.

The Potamides matsoni assemblage of microfossils is known to range throughout at least 500 feet of sediments near the center of coastal Louisiana. Any attempt to draw contours on the top of the zone is attended by hazard due to the irregularities of brackish water deposition. This zone, however, can be recognized throughout the northern portion of the shaded area shown in Figure 8. In addition to early production at Lockport, it is known to produce oil at Cameron Meadows and Gueydan, and is probably the source of production in several other domes.

Marine Upper Miocene

Brackish water conditions prevailed in Louisiana during upper Miocene times at least as far south as Assumption Parish, where a Potamides matsoni microfauna has been observed at depths around 6,000 feet. Farther south marine conditions prevailed. These marine upper Miocene sediments have been the producing horizons on most of the domes of the lower Mississippi delta, where they are known to be over 4,000 feet thick. Craft[38] has reported upper marine Miocene oil production from: Lake Pelto, around 1,200 feet; Lake Barre, around 3,800 feet; Caillou Island, around 4,300 feet; Leeville, around 3,600 feet; Lake Hermitage, around 4,200 feet; and Four Isles, around 5,600 feet. The old Houma field produced gas from around 2,200 feet, from beds determined as upper Miocene on the basis of Mollusca, but micro-

fossils have not been available as a check in age determination. It is possible that marine upper Miocene will be encountered near the coast in the parishes west of Terrebonne, as a good upper Miocene foraminiferal fauna has been reported[26] from above the East Hackberry dome at depths around 3,000 feet.

Pliocene Horizons

The Pliocene of southern Louisiana is very imperfectly known. Until a few years ago, it was more or less customary to simply refer the gravel-bearing beds encountered in wells to the Pliocene, and the formations below the gravels to the all-inclusive "Fleming." Certain exceptions, of course, continued in the literature, such as the Welsh and Edgerly fields, where Pliocene sediments were reported to extend 2,000 feet below the base of the gravel section. Whether the Louisiana gravel horizons are wholly or in part Pleistocene, or are really Pliocene in age has not been determined by any satisfactory paleontologic evidence. It is certain, however, that beneath the gravels and above the Rangia johnsoni zone are fully 2,000 feet of sediments in southwestern Louisiana that cannot be older than Pliocene. These gravels were called "Lafayette" in the older literature, but since 1917 have in most cases been called by rather inclusive name "Citronelle." These gravel-bearing beds are reported commonly in wells of southwestern Louisiana to depths that range from 800 feet to more than 1,400 feet below the surface, and are overlain by a veneer of clays that is seldom more than 200 feet thick.

In the region of the lower Mississippi delta the situation is somewhat more complex. Gravels are reported in wells immediately south of New Orleans to depths around 4,000 feet, and Rangia johnsoni occurs at depths between 6,300 feet and 6,800 feet. Yet only a short distance west, in Terrebonne Parish, gravel is not commonly recorded on well logs, and the Pliocene section appears marine. The interpretation of the thick marine section of Terrebonne and Lafourche Parishes is difficult at present. It probably represents nearly all of Pliocene time, and the only described Pliocene microfauna available for correlation purposes is a small one from the comparatively thin Caloosahatchee marl of southern Florida. Interpretation is rendered yet more difficult because most of our knowledge of Pliocene sediments comes from wells drilled on piercement-type domes, where the section is only partially represented; wells on deep domes seldom being cored at depths less than 5,000 feet.

Rangia Johnsoni Zone

While the writer recognizes the possibility that Rangia johnsoni may occur in brackish water equivalents of the uppermost Cancellaria zone, he is tentatively placing the beds which it characterizes in the lower Pliocene, as was suggested by Harris[26] 26 years ago. This is done because Rangia johnsoni appears in wells at depths fully 500 feet above Potamides matsoni, whose upper Choctawhatchee age appears fairly certain.

Though probably present, the occurrence of the Rangia johnsoni zone has not been mentioned in the published descriptions of a number of fields which lie in the northern portion of the area indicated in black on the map, Figure 9. The Rangia johnsoni zone was, however, an important source of production in the early days of the Jennings field between 1,800 feet and 2,100 feet. Some oil also was produced on the Darrow dome 200 feet below the top of the Rangia johnsoni zone at a depth around 4,800 feet.

Other Pliocene Production

Craft[21] has reported Pliocene oil production from the following domes: Anse La Butte, Welsh, Vinton, Edgerly, New Iberia, Starks, and Dog Lake. Additional Pliocene production has been somewhat indefinitely suggested by the Oil Weekly[25] from the following domes: Hackberry, Fausse Pointe, Bay St. Elaine (gas) and Bayou Blue. In doing so, they merely indicated that the age of production was "Pliocene-Miocene," or, in some cases, "Miocene-Pliocene."

In the Welsh and Edgerly fields the production mentioned has been obtained from sands underlying the gravel series. In the Dog Lake and Bay St. Elaine fields the production is from shal-

(Continued on Page 124)

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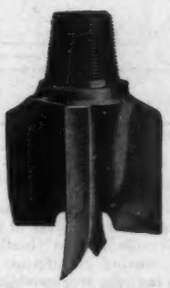

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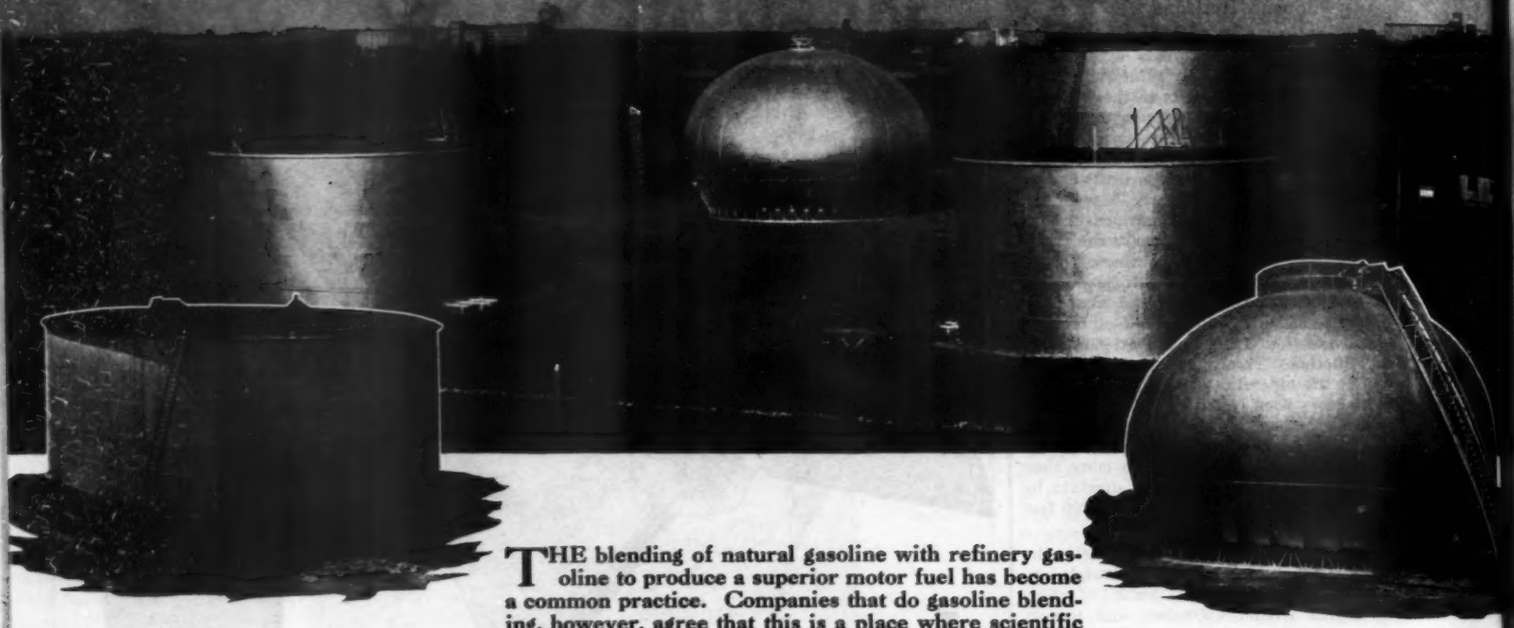

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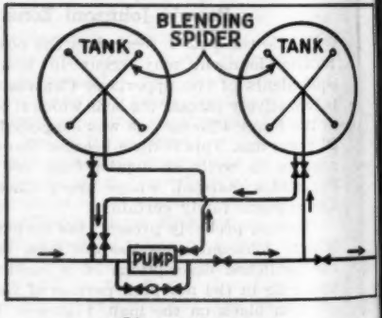

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Group Pumping System Used in Duval County Districts

By W. F. HERBERT
Petroleum Engineer, The Texas Company

With the development of the need for pumping equipment to produce wells in the Government Wells and Loma Novia areas of Duval County, a new trend in the selection of equipment has been definitely accepted by Gulf Coast operators, a trend that is particularly adaptable for fields where the production is from formations above 4,000 feet, which is limited by either the producing ability of the formations, or by highly restricted proration.

Taking their cue from bandwheel powers, originally developed for shallow stripper production, these operators have been grouping their wells in twos, threes, fours and on up to 16 wells or more, in groups that can be conveniently and economically handled by a single prime mover and reduction unit through rod lines and pumping jacks to each well.

Several factors justify such a course:

1. Effective counterbalancing of the rod and fluid load is obtained when two wells are paired to pump opposite each other.

2. The horsepower requirements for pumping two or more wells, because of this counterbalancing effect, is materially reduced.

3. The installed horsepower for lifting a group of wells is less than would be required with an individual prime mover at each well.

4. The investment, because of the reduction in installed horsepower, is lower.

4. (a) This investment may be further reduced by arranging the size of the well groups to take advantage of "optimum" purchasing conditions; that is, the selection of sizes, or ratings of equipment to bring the cost of installation to the least cost per horsepower or per well. This condition may be further augmented by the use of surplus equipment previously utilized under heavier pumping conditions.

5. Restricted production due to proration, physical characteristics of the wells, or production practices dictates that the investment should be kept at a minimum. However, in selecting the equipment for group operation, reasonable consideration should be given possible future operating conditions whether due to increased demand for oil or handling salt water, or both.

Group pumping has an infinite number of arrangements and applications. A short description of the more common types of hook-ups follow:

Bandwheel powers still have the advantage in pumping large leases because of their low investment, their natural balance under similar operating conditions in all wells, and their ability to meet reasonable variations of the pumping rate. However, the bandwheel power has its limitations, and under certain conditions the two, three or four-well hook-up has the advantage. Particularly for the smaller leases, or on leases where the topography requires excessive rod line equipment, or on leases presenting variable pumping problems due to salt water or sand conditions, the few well hook-up is adaptable.

Multiple pumping unit installation in Government Wells field in Lower Gulf Coast district, to which four wells can be connected

Two types of the two-well hook-up are in use; one type places the usual pumping unit at one well, the second well being pumped by pull rods and jack connected to the back crank or to the bell crank mounted on the walking beam of the

(Continued on Page 128)

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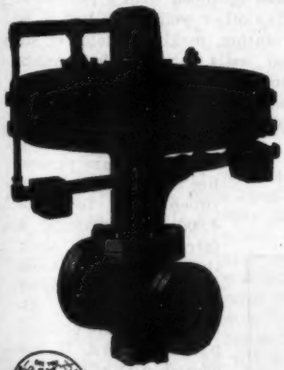

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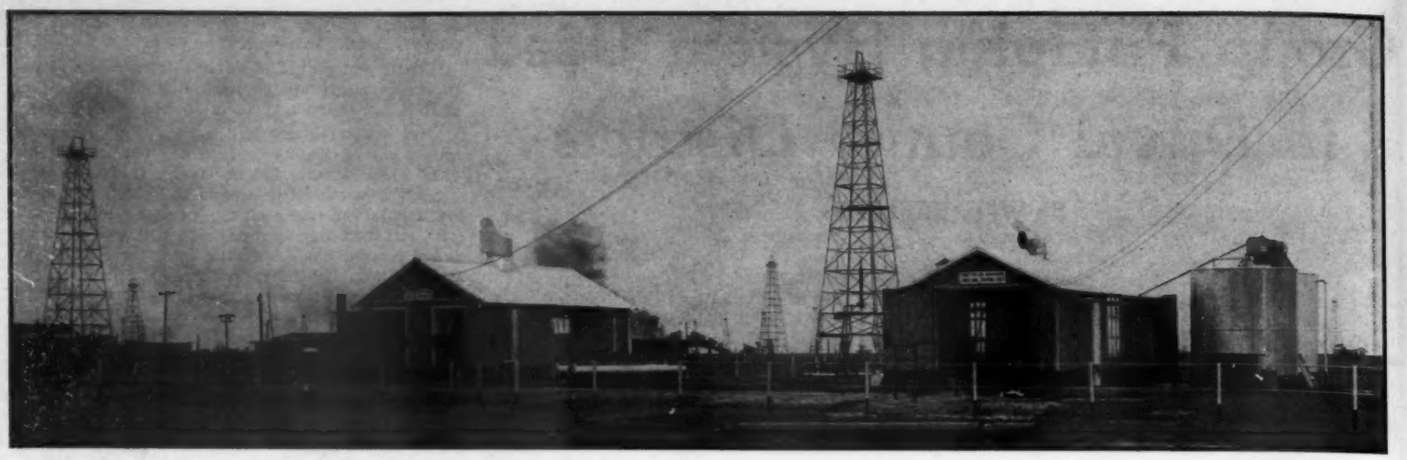


One of the five compressor stations used by the Texas Co. to supply air for pneumatic lift operations in the Manvel field, Brazoria County

Field-Wide Air Compression System Using Pneumatic Pumping Heads

A systematic program by which all its wells in the shallow Miocene sand area of the Manvel field, Texas Gulf Coast, are to be produced eventually through a field-wide air compression system using pneumatic pumping heads, is being carried out by the Texas Co.

The program was started in October, 1934, when the first compressor station was put in operation with three wells on the hook-up. Since then the system has been gradually extended until now there are five compressor stations, with a total of 19 wells in the hook-up.

The fifth station only comparatively recently was put in operation with six wells in its hook-up. The latter hook-up, which involves wells in the extreme northern end of the field, at present is operated entirely separate of the other stations, which are tied in on a common air compressor system serving 13 wells.

Location of the first station was in the extreme south end of the field. For it, a single 70-horsepower air compressor was installed. The three wells included in the initial hook-up were Nos. 2 Leider, 5 Belcher and 3 Ewing, all within close proximity of the station. Shortly after the station was put in operation, two additional wells, Nos. 7 and 11 Houston Oil Field Association, were added to the hook-up, lines to them being extended from the original hook-up.

With the prospect of additional wells having to be put on artificial lift in the near future, a second unit was added adjacent to the first compressor station, this installation also being a 70-horsepower compressor. This was completed in March, 1935, and for a time served only as a stand-by. However, as four more wells shortly ceased flowing naturally and were rigged up with pneumatic heads, and additional air compression capacity was needed, the new unit was pressed into regular use. The additional wells placed on the hook-up includes Nos 3 Belcher, 3, 6 and 12 Houston Oil Field Association.

The incorporation of two more wells, Nos. 3 Lieder and 2 Morrison, located at the extreme east end of the line, into the system made necessary a further increase in air compression capacity, and Station No. 3 was put in. This station, also consisting of a 70-horsepower compressor, was placed in operation in September, 1935. One of the wells, No. 2 Morrison, after being rigged up with a pumping head, started flowing naturally, and has not had to be pumped so far.

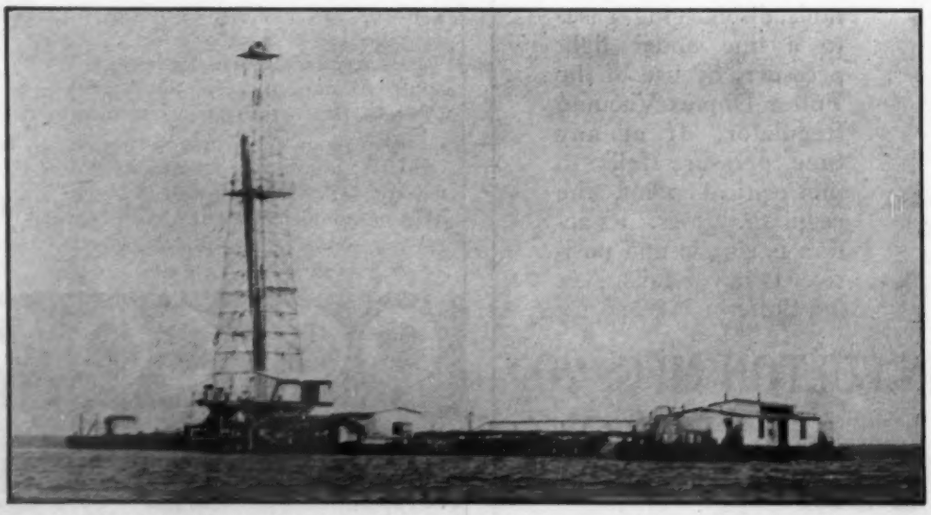
As lines were extended to connect with three additional wells, Nos. 4, 10 and 15 Houston Oil Field Association, to be rigged up with pumping heads, requiring additional air pressure capacity, another station, Station No. 4, was built on the system near the location of these wells. This station, also a 70-horsepower compressor, was placed in operation in October, 1935.

Up to that time, this system took in all the wells in the Miocene sand area which had required artificial lifting, with the exception of one well in the extreme north end of the field. In view of its distance from the compressor stations and the other wells on the pump, a portable pumping unit had been installed on it, pending the time when other wells in that vicinity would have to be placed on the pump.

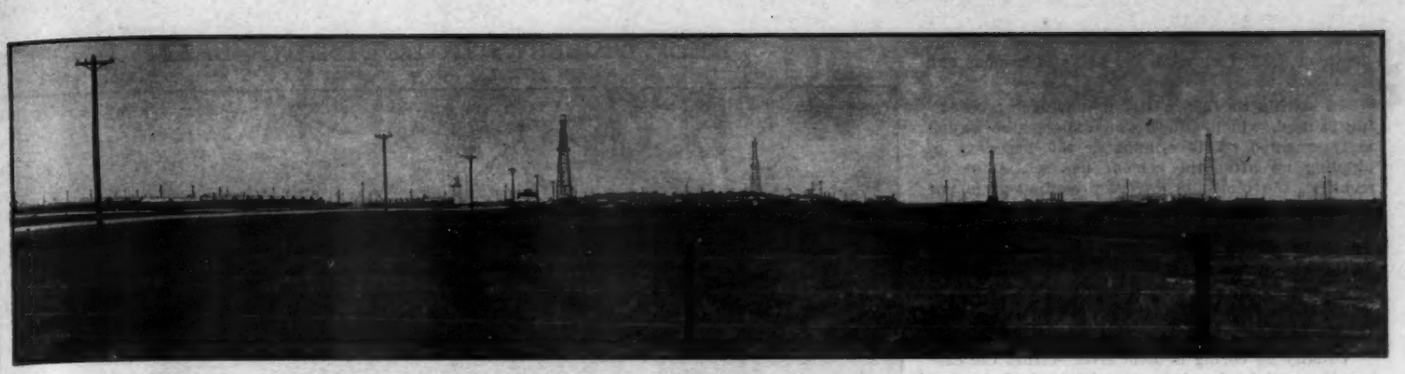
However, in December, a station was built in that section and that well, No. 15 Houston Oil Field Association, was equipped with a pneumatic head. Since then, five other wells have had to be hooked on to that station, making a total of six wells. As additional wells between that system and the larger system have to be pumped and lines are extended and additional compressor capacity added, the two systems are to be tied together.

The sand from which these wells are producing is at a depth of between 3,800 feet and 4,000 feet, covering a fairly wide area along the east and southeast sides of the Manvel deep sand area. Although not the original production, it has proved possibly the most important part of the field. Out of a total of 58 wells in this Miocene area, the Texas Co. has a total of 41 wells. Extremely variable pumping conditions over the area, and the fact that the area is of fairly wide extent made it impractical for the company to pump the wells by powers. On the other hand, because of the shallowness of the sand and other factors, the company did not desire to install individual pumping units in this area.

DIESEL-ELECTRIC DRILLING BARGE OPERATION



View in southeastern Louisiana field with power barge at right



General view of Anahuac field in Chambers County, Texas Gulf Co ast, looking north showing Humble Oil & Refining Co. camp on left

Anahuac Development Is Systematic; Thickest Producing Sand on Coast

By F. L. SINGLETON

With an estimated 202,000,000-bbl. oil reserve and a probable producing area of 10,000 acres, the Anahuac field in northern Chambers County, has proven to be the largest potential oil reserve discovered on the Gulf Coast since Conroe in December, 1931.

Anahuac is believed to be situated on a deeply seated salt dome type of structure and is controlled by three companies. They are Sun Oil Co., Humble Oil & Refining Co., and Gulf Oil Corp.

The surface conditions overlying the producing sand are composed of soft shales and sands that makes ideal drilling conditions. The producing sand at Anahuac is the thickest section encountered in any field on the Gulf Coast. The average thickness is over 250 feet and it extends over the field in a uniform body. The top of the sand or Frio is encountered at approximately 6,900 feet and the average producing depth is 7,085 feet. The water-oil contact is at 7,140 feet and the gas-oil contact at 7,020 feet, with the majority of the wells being completed at least 65 feet below the gas-oil contact and 55 feet above the water-oil contact.

Probably no other field has been developed on a more systematic basis than Anahuac, located in what was formerly marshy rice farm land, a network of shell roads has been constructed throughout the field by the three companies. The main roads, 18 feet wide, are constructed along section and half-section lines with lateral roads 12 feet wide at each half section and perpendicular to the main roads. They are surfaced with a 12-inch layer of shell and as the field is extended the construction of these roads are kept well in advance of the general development of the field which has played an important part in reducing the time in moving in and setting up the rig.

In order to reduce the time element required for drilling these 7,000-foot holes, the three companies are following a systematic method of operation, the most interesting being that employed by the Humble Oil & Refining Co. which owns the majority of the acreage. At present this company is operating six rigs, which requires the maintenance of 12 drilling derricks, or two for each rig. Locations are made and derricks erected so that rigs are moved direct from the completed well to a new location. The rigs are medium heavy size with unitized drawworks. Derricks and pits are completed well in advance of the time the rig is moved in. The derricks are 122-foot with a 24-foot base and a 7-foot 8-inch substructure. The size of the cellars required for the blowout preventor are 8'x8'x5' 7" deep.

In order that there will be no interference with the movement of derricks, six locations are kept ahead of the derricks at all times. After the locations are made, crews dig the derrick foundations, cellar, slush pits, reserve pits and boiler water pits. The pits are dug with a small drag line and the derrick foundations by hand. The time required for digging the pits is about 16 hours, and the derrick foundations from one and one-half to two days. A board road is then built to the nearest surfaced road. The derricks are erected by company rig builders and require from two and one-half to three days. After the well is completed the derrick is torn down in one and one-half to two days and the board road and derrick are moved to the next location.

While the derrick is being erected and pits dug, or at any time after the location is made, 2½-inch gas lines and 2½-inch water lines are laid to the location. These lines tie into the main line which runs along the half-section and section lines in a checkerboard pattern. The gas system for the entire field is of 2½-inch line pipe and water lines of 2½-inch and 4-inch pipe. Each tank battery is tied into the gas system, and its gas produced into the system to maintain a pressure of from 80 to 120 pounds, on the field system. Additional or makeup gas is supplied from a well which produces through the casing from the upper gas sand. All wells are completed in such a manner that oil is produced through the tubing at a normal ratio and gas from the bradenhead. The amount of gas produced is automatically controlled by a regulating system so that only the gas needed to maintain the system at the required pressure is withdrawn. No excess gas is produced from the wells. The water system is supplied by pumps at various points along the irrigation canal that bisects the field.

Moving unitized drawworks by trucks in the Anahuac field, Chambers County, Texas

The time required to drill and complete a well in the 7,000-foot sand average 22 to 24 days. This time is consumed as follows: Rig up 1.83 days, tearing down .53 day, drilling 11.31 days, casing and cementing 6.35 days, completing 1.50 days, coring 1.22 days and miscellaneous .73 day.

The efficiency in rigging up and tearing down is attained by the systematic method used in dismantling, moving and reassembling the rig. When completing the well, after the tubing is run, the crown block is taken down and the derrick is stripped of all hoisting equipment. If it is found necessary to swab the well, a coring line is used and while the well is being swabbed, part of the crew dismantles the pumps, drawworks and engines so by the time the well is flowing, a large portion of the rig is ready to move. The boilers are then cooled, dismantled and moved to the next location and the rig is reassembled in the reverse order in which it was torn down, that is boilers, drawworks, pumps and hoisting equipment. The time required for moving in and reassembling the rig is only 2.36 days.

A full complement of crane trucks, light float trucks, heavy trailer trucks and caterpillars is required in moving the rig. In good weather the caterpillar usually moves the boilers, drawworks or the pumps, while the medium heavy pieces are moved by the large trailer trucks. The light float trucks are often used in transporting the drill pipe. The crane trucks are used at the location in unloading and handling other equipment. By following a definite schedule in tearing down and moving the rig, with which various crews are familiar, the highest degree of efficiency is being maintained.

The casing program at Anahuac usually consists of a 40-foot string of 16-inch welded conductor pipe, which is cemented to the surface. This pipe is used purely as a protection against surface sands and is not tied to any other string of casing. The cement is allowed to set eight hours on this string and is followed by a surface string of 10¾-inch 35.75-pound grade "C" pipe which is cemented at approximately 1,500 feet and allowed to set 60 hours. The oil string is 7-inch outside diameter

grade "C" casing and is cemented at an average depth of 7,050 feet with 330 sacks of cement and is allowed to set 72 hours.

In setting the 7-inch string, a hanger type casing is used, which allows the casing to be swung and cemented. This eliminates the necessity of nippling up after the cement has set. After cementing, the blowout preventer equipment is put back on immediately and the 3½-inch drill pipe is made up and run in the casing to the top of the cement, and the 2½-inch tubing is made up and set back in the derrick. After the cement has set the required time, the plug is drilled and the hole drilled to the final depth, provided the hole needs to be deepened.

Usually no coring is done after setting the casing, the well having been completely drilled prior to running the oil string. After the plug is drilled a screen setting of .040 gauge, vertically slotted 5-inch outside diameter pipe and a short section of 5-inch blank pipe, usually about 115 feet, with a collapsible canvas packer on top is run in the well and set with the 3½-inch drill pipe. Just prior to collapsing the packer a measured amount of water, sufficient to fill behind the screen and a short distance above the packer, is pumped into the well and the packer is set, the well mudded up, the drill pipe pulled out and laid down ready to be moved to the next location. All blowout preventer equipment is removed, the lower half of the tubing head made up on the 7-inch casing, tubing run and the christmas tree made up on the tubing head. The christmas tree is made up and tested to 5,000 pounds pressure before being set to the well, so it is only necessary to flange it on to the lower half of the tubing head. After the tree is completely installed, the mud in the well is displaced with water by pumping through the tubing and out at the side outlet of the tubing head. Washing the well is done with the slush pumps and after the well is completely washed, all of the drilling equipment with the exception of the boilers may be dismantled while rigging up to swab.

The shales encountered at Anahuac makes excellent drilling mud and it is only in the rarest

DEEP DRILLING IN LOUISIANA LAKE

Modern electrical pumping unit on deep well in Calcasieu Lake, East Hackberry, Louisiana

cases it is necessary to add weighting materials to the natural mud. The weight of the mud is ordinarily maintained from 9.6 pounds to 10 pounds and in a very fluid condition. The weight and viscosity of the mud are easily controlled by adding water and it is seldom necessary to add chemicals of any sort to maintain the proper physicals.

Practically all wells are drilled with fishtail bits and an average of 13 are used on each well. The sizes and numbers of bits used are as follows: One 14-inch, ten 9⅞-inch, one 9⅞-inch core bit, one 6⅛-inch core bit. The majority of the coring is done with the wire line core barrel. Coring has been reduced to a minimum due to the uniform character of the producing horizon. During the early stages of development, an average of 15 cores were taken on each well, but recently this has been cut to less than 10. By using a 9⅞-inch core bit for drilling most of the hole and a 6⅛-inch core bit only in the oil section of the producing sand, reaming of rathole has been reduced to a minimum.

Four and one-half inch drill pipe is used to drill the well to completion prior to setting the 7-inch casing. The drill pipe is 16.60-pound grade "D" with full hole tool joints which allows the use of an efficient size wire line core barrel, and also reduces fluid friction. After the producing string is set a string of 3½-inch 13.30-pound drill pipe is used to complete the well as described above.

Each rig is equipped with an 18-inch pump and one 16-inch slush pump which is used as a standby should larger pump fail to function. Steam power is furnished by two 125-horsepower boilers with 300-pound stream steam pressure.

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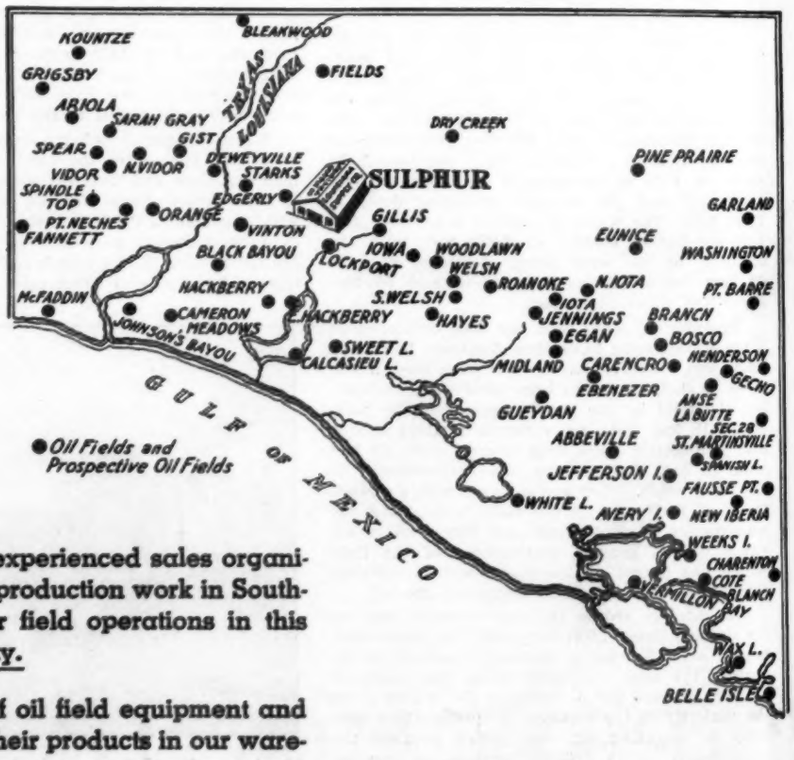

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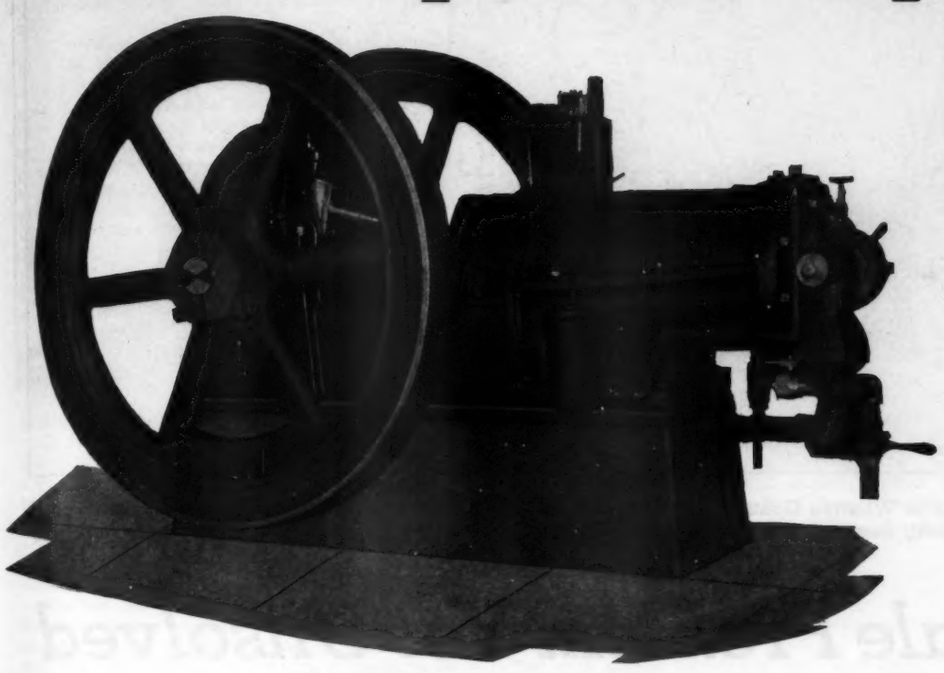

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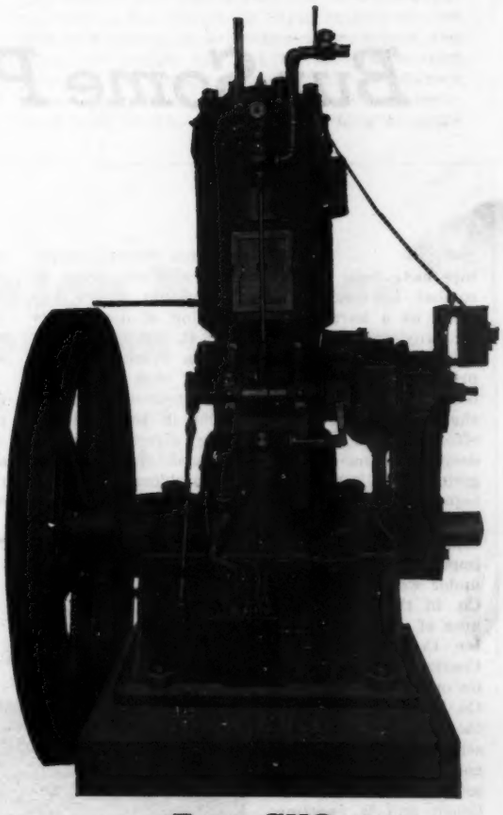

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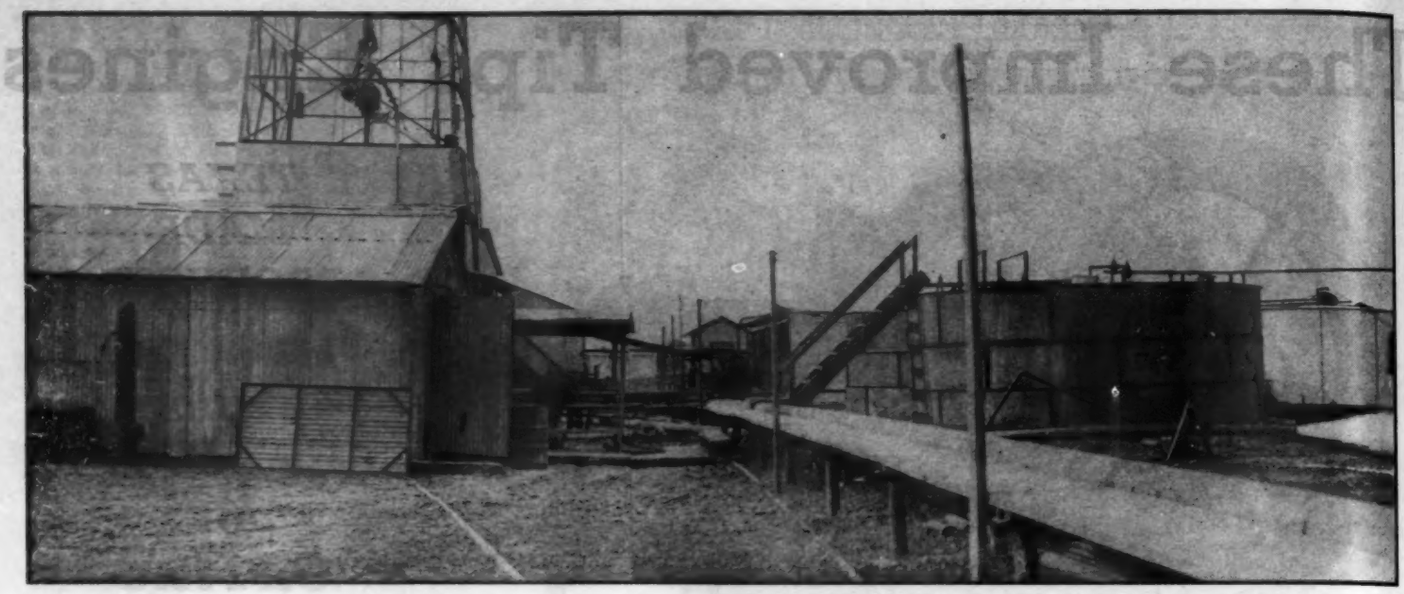


Layout of Pure Oil Co., heaving shale wildcat in Wharton County. At right mud and chemical tanks, back of which are covered mud pits and ditches. At left are buildings for storing unmixed chemicals and muds. Well being drilled with large double drawworks rig

Heaving Shale Problem Yet Unsolved

But Some Progress Being Reported

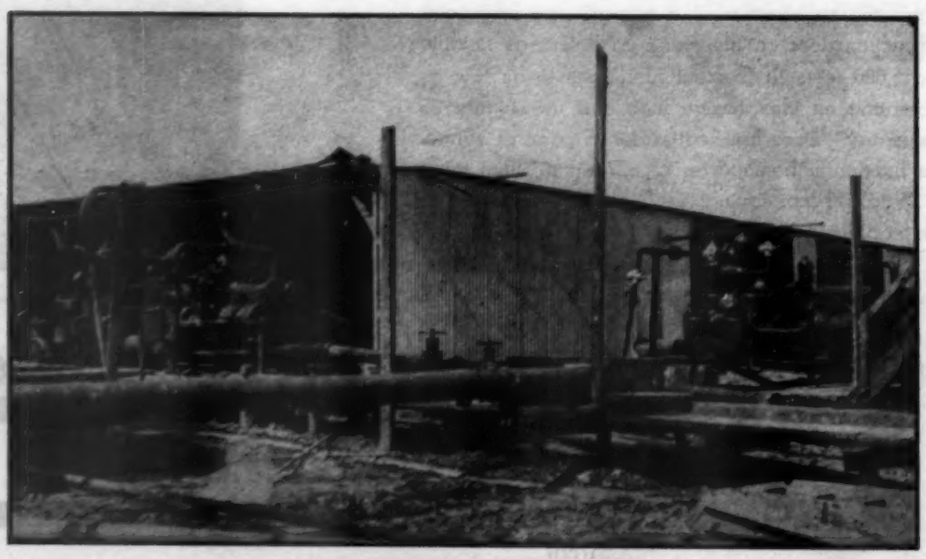
By NEIL WILLIAMS

The work which several companies have been doing recently, and are doing, to combat heaving shale, a formation which has stood as a barrier to exploration of deep sands in many areas of the Gulf Coast, has resulted in definite progress being made in overcoming the problem. It is still very evident that there may be much yet to be learned concerning heaving shale and means for controlling it, but with the efforts which now are being directed toward deeper drilling on the Gulf Coast, operators are giving more attention to the problem than ever before.

Another heaving shale test of especial importance is now under way by Pure Oil Co. in the Blue Basin area of southern Wharton County. Like the Continental Oil Co. on its operations, Pure Oil Co. has provided one of the most complete assemblages of equipment and facilities ever set up on the Gulf Coast, and is exerting every precaution considered necessary to insure the successful completion of the hole. This test also is being drilled with a wire-line, collapsible blade bit. The bits are being run on 4½-inch internal flush-joint drill pipe. This is being done so that the company will be able to core as it goes. A wire-line core barrel is being used. Continuous circulating tool joints, however, are being run. Silicate of soda drilling mud is being circulated, the concentration being two-third silicate of soda and one-third brine. This is the highest concentration which has been used in any of the tests which have used that mud so far.

The hole was drilled conventionally to a total depth of 7,676 feet, where 9⅝-inch casing was cemented. At that depth the bottom was not in the shale but it was expected to run into the shale shortly and it was desired to have the casing in the hole and the mud conditioned for the shale before the shale was topped.

The rig, which is company operated, also is provided with auxiliary drawworks and engines. The equipment throughout is the biggest and most modern obtainable so as to be able to handle any emergency. It has a 136-foot derrick with a 30-foot base with an elevated substructure. Four 125-horsepower, 350-pound working pressure boilers furnish steam requirements for the engines and pumps. It has three standpipes, one serving as a standby while the other two are in regular use, the continuous circulating joints calling for two standpipe connections. There also are two kellys and two swivels.



Covered mud pits and pump hookup on Pure Oil Co. heaving shale test, Blue Basin area

Pumps include one 15½x8½x20 pump, the largest, and two 14x7¼x18 pumps, for regular use. These can be compounded in any combination. In addition there is one 12x6¾x12 pump for general use in mixing of muds and pumping of muds and chemicals to various tanks or pits. As an extra precaution against shutdown of steam pumps due to failure of steam power, a small 10-inch gasoline-driven pump is on the job. This is sufficient to maintain circulation until the other pumps can be put in operation after a shutdown.

Particular attention is being paid to conditioning of the mud and a complete laboratory is

maintained. This entire mud system also is entirely closed under substantial covering and buildings. There are three shale shakers operated by governor-controlled steam turbines. Steel tanks for reserve mud storage, brine and silicate are being used.

In view of the cost of silicate of soda mud, Pure Oil Co. has devised a means of saving the mud which ordinarily is lost when splattered out over the derrick floor in the breaking out of drill pipe. Underneath the derrick floor, under the rotary, a metal accumulation pan is fastened, this being provided with an outlet to the return ditch, and also a by-pass through which the mud can be passed, if desired, out of the system. The mud box is fitted with a top and a bottom, in such a way that when the box is closed around the drill pipe the box is sealed against leakage. Out of the bottom of the box is a drain which empties into the accumulation pan under the rotary.

Another innovation in Pure's operation is in the core barrel. This barrel is so constructed and run that it does not protrude more than 6 to 8 inches when coring. This minimizes the possibility of breaking and trouble in the hole.

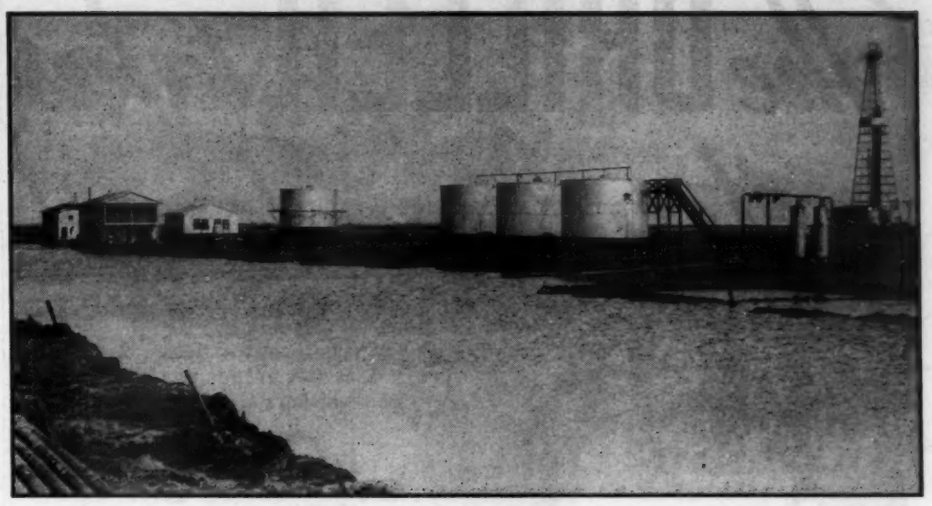
The Texas Co. is undertaking another interesting attempt to drill through heaving shale at Bryon Mound, Brazoria County. This is the Texas Co.'s third attempt on this dome, the first two having been lost in heaving shale. It was in this company's first test, No. 1 Freeport Sulphur Co., at Bryon Mound, drilled in 1935, that the use of silicate of soda for drilling mud was tried.

The test has run 25-inch conductor pipe to 179 feet and 18⅝-inch surface casing to 650 feet, and expects to cement 13⅜-inch casing around 4,000 feet just above where the shale is expected to be encountered. The exceptionally large hole started and now being drilled is expected to facilitate work and control of the shale at lower depths. Like the other heaving shale tests previously described, the Texas Co. operation is equipped with the heaviest and most modern equipment, and a concerted attempt will be made to get through the shale. It has a 136-foot steel derrick on a 17-foot substructure, the same as the two previous tests drilled on the dome.

The mud system includes a steel mud ditch, entirely covered, and house pits. Specialized mud engineers will keep constant check on the condition of the mud.

Included in the equipment are a 300-ton, six-sheave, double-deck crown block; a five-sheave, 76-inch traveling block; a 300-ton hook; 300-ton 108-inch elevator links; a 200-ton swivel; a 41-foot, 4¼-inch square, upset end kelly; a 27-inch make and break overhang sprocket-type rotary; a roller-drive kelly bushing; a 30-foot, 8-inch drill collar; a very modernized unitary drawworks with a 7½-inch bearing jack shaft, the test being the first ever drilled with this drawworks, which recently was put on the market; a 12x12 engine; two 18-inch mud pumps; four 100-horsepower boilers, two being 250 pounds and two 275 pounds working pressure; two steam turbine driven shale shakers. These descriptions are typical of the sizes of equipment being used in modern shale drilling attempts.

OPERATIONS ALONG LOUISIANA CANALS



General view in Lafitte field, marsh district in Jefferson Parish, Coastal Louisiana. At left two house boats, back of these Texas Pipe Line Co.'s pump station. Tanks are erected on cribbing on matting base. At right drilling barge operation in another canal

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Louisiana Petroleum Stratigraphy

(Continued from Page 111)

low sands overlying the caprock. In most of the other fields mentioned the production comes from the gravel series overlying shallow piercement-type domes at relatively shallow depths and perhaps should be referred to the Pleistocene instead of to the Pliocene.

Caprock Production

As the caprock of the Louisiana salt domes is considered to be a secondary deposit formed through the solution of the upper part of the salt core of shallow piercement-type domes, it cannot be assigned a definite age. Caprock production has been recorded from the following domes: Starks, Sorrento, Black Bayou, and Lake Washington. In addition, a small amount of oil was produced from the caprock of the Sulphur dome during the time of sulfur mining, and small quantities have been reported from the caprock of several other domes. Caprock production, however, has been of relatively minor importance in Louisiana.

Conclusions[1]

The writer of this report makes no pretense of having prepared an exhaustive survey of the occurrence of petroleum in Louisiana. In the absence of so much needed subsurface paleontological and lithological information, such a study could hardly be attempted at the present time. He has, however, tried rather to convey in the simplest manner possible an understandable picture of the great number of horizons from which Louisiana has produced 615,628,423 bbls.[2] of oil and 2,931,288,000,000 feet[3] of gas during the past 35 years. Believing that pictures tell a story more fluently than words, he has prepared the nine outline maps which accompany this report. In doing so, he has selected units which range in thickness from 2,500 feet to more than 5,000 feet as a means of impressing upon the reader the tremendous accumulation of sediments which compose the Gulf Coast geosyncline. Each of these outline maps represent a number of distinct producing horizons, many of them important enough to justify separate maps of their own.

In the beginning, the writer outlined the ideas which have governed the search for petroleum in Louisiana. The maps indicate the progress which these ideas have made. No clearer illustration is needed than the map of the Catahoula group to show how the search for production from the Discorbis, Heterostegina and Marginulina zones has progressed from Texas nearly half way across Louisiana. When the reader realizes that the maps represent more or less comparable stratigraphic units, he cannot fail to be impressed by the vacancy of a number of the black areas shown, and he does not need to be told that Louisiana will produce more oil in the future than it has in the past.

References and Footnotes

1. Most textbooks in geology indicate that the total thickness of the Cretaceous and Tertiary formations of the Gulf Coast is between 2,000 feet and 4,000 feet. The reader may trace the history of present ideas concerning the thickness of sediments composing the Gulf Coast geosyncline from the following papers: Stephenson, L. W., Wash. Acad. Sci., Jour., Vol. 16, No. 17, 1926, pp. 460-480; estimated thickness 10,000 feet. Stephenson, L. W., Geol. Soc. Am., Bull., Vol. 39, 1928, pp. 887-900; thickness more than 15,000 feet; possibly as much as 25,000 feet. Spooner, W. C., Pan-Am. Geol., Vol. 94, No. 2, 1928, pp. 238-239; Geol. Soc. Am., Bull., Vol. 39, 1928, pp. 274-275; thickness 22,250 feet plus. Howe, H. V., and Moreisi, C. K., La. Dept. Consv., Geol. Bull. No. 1, 1931, pp. 86-92; thickness more than 27,700 feet. Barton, D. C., Ritz, C. H., and Hickey, Maude. Am. Assn. Pet. Geol., Bull., Vol. 17, No. 12, 1933, pp. 1,446-1,458; thickness more than 20,000 feet at Houston, more than 25,000 feet at Jennings, and south of New Orleans more than 30,000 feet. Howe, H. V., Russell, R. J., and McGuirt, J. H., La. Dept. Consv., Geol., Bull., No. 6, 1936, pp. 39-41; thickness of Tertiary alone may be more than 31,000 feet in southeastern Vermilion Parish, Louisiana.

2. Hull, J. P. D., "Notes on the Stratigraphy of Producing Sands in Northern Louisiana and Southern Arkansas," Am. Assoc. Pet. Geol., Bull., Vol. 7, No. 4, 1923, pp. 362-369.

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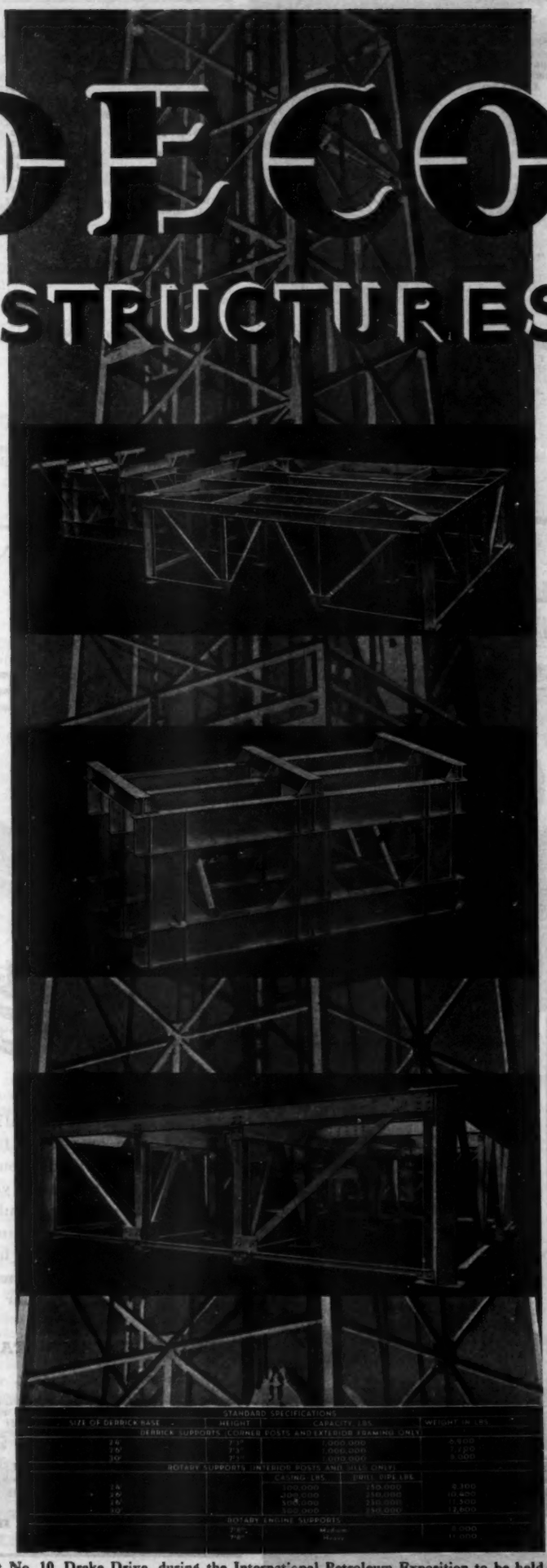

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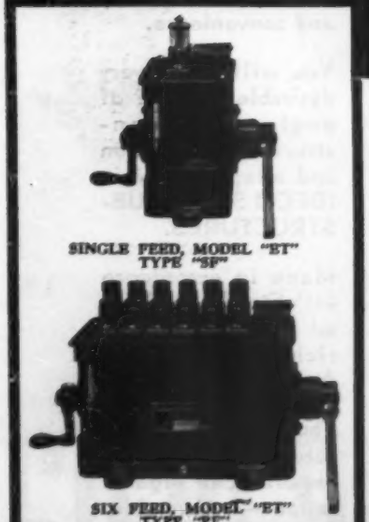

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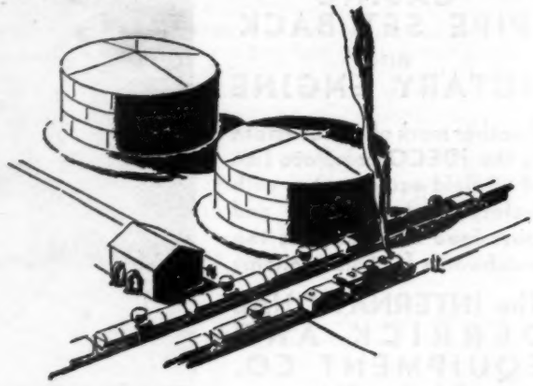

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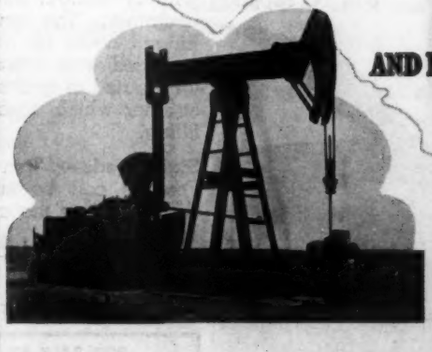

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94. Figure obtained from B. C. Craft.
95. Figure obtained from B. C. Craft.

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Group Pumping System in the Duval County Fields

(Continued from Page 113)

pumping unit. The second type places the power unit, comprising prime mover, reduction and stroking equipment, midway between wells. Both wells are connected to the same stroke post.

The three-well hook-up uses the conventional single crank pumping unit at one well, and by means of the back crank, stroke posts and rod lines the other two wells are pumped by it. With such an arrangement some means of counterbalancing the first front-crank well is required.

The four-well hook-up is similar to the second type of two-well hook-up mentioned above. That is the power unit is located conveniently on the lease to balance the lengths of pull rods, either midway between two wells or central to the four wells. In this manner two wells are pulled in a direct line, the other two by means of swings. Two wells are connected to the front crank of the reduction unit, and two to the back crank. By setting the cranks 90 degrees apart, a very uniform power load is developed.

No attempt has been made to analyze the various types of equipment entering these different installations. Suffice it to say, that the use of both modern manufacturers' designs, and surplus equipment salvaged from earlier producing areas have particular applications in this method of pumping. However, in selecting and arranging equipment, consideration is being given to both the immediate and future pumping problem, and of the performance to be expected from the equipment.

Two other types of pumping equipment may be included in the classification of group pumping, namely, the Hughes Plunger Lift and the Sullivan Pneumatic Head, in as much as both are operated from central compressor plants. These methods are comparatively new, however, considerable is to be expected of them in the future, particularly in that they offer a flexibility of individual well operation not possible with the types of group pumping equipment previously discussed. The advantage of this flexibility lies in the ability to pump each well in accordance with individual well characteristics. Thus, an edge well making an appreciable amount of salt water may be pumped hard to produce its oil, or an average well may be operated continuously at just the rate necessary to produce its daily allowable, with the added advantage that there is a constant flow of fluid toward the well; or a small producer may be pumped at a rate commensurate with the flow of fluid to that well.

Movement of Crude Oil by Canals and Rivers

(Continued from Page 97)

which will afford more accessible conditions to this large area, which is looked upon as one of the most promising in Coastal Louisiana.

The course of the Intracoastal Canal was routed to take advantage of previously existing navigable channels and to avoid, where possible, channels in open shallow bays or lakes. Leaving New Orleans there are two alternate routes to Morgan City, where the two channels converge. The northern route leaves the Mississippi River at Plaquemine, La., 112 miles above New Orleans, through the Plaquemine Lock, and thence via Bayou Plaquemine and connecting waterways to Morgan City. Construction of this canal was completed in 1934. The lower route leaves the Mississippi River by means of the Harvey Lock and extends southward from Harvey, La. The Louisiana section of the canal was open for navigation in December, 1933, and is maintained by the First New Orleans District, while the sections in Texas are under the supervision of the Galveston District. The final construction of the canal from Port Arthur to Galveston was completed in June, 1934.

The deepest section of the canal is from Port Arthur to Lake Charles. The depth of the channel here is from 25 to 33 feet deep and from 60 to 70 feet in width, which affords a deep water outlet to the Gulf of Mexico.

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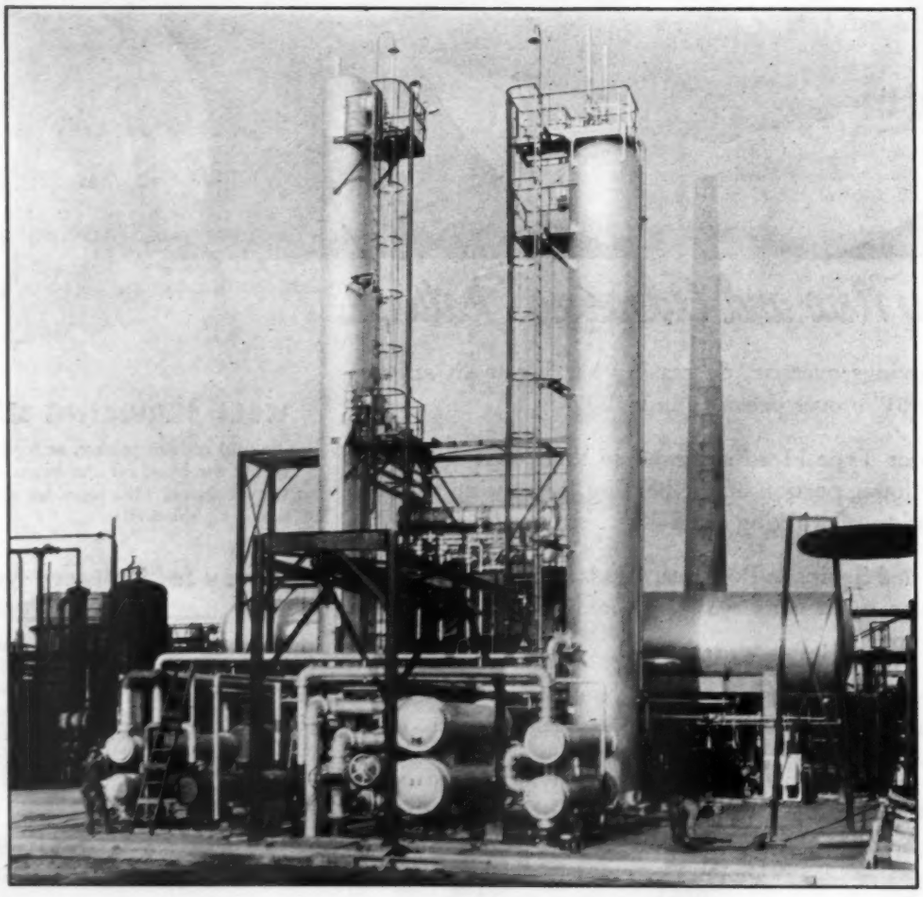
Coastal Refining Development Based Upon Converging Transportation

By GEORGE WEBER

The position of the Gulf Coast of Texas and Louisiana at the tide water outlet for the entire Mid-Continent oil industry has been responsible for the development of that area into a major oil shipping and refining center of the world. As a converging center for trunk pipe lines, canals and railroads, this line of deep water ports offers an outlet by economical water transportation to major world markets, at the same time serving inland areas with incoming oil supplies.

Oil production within the Gulf Coast area totaled more than 50,000,000 bbls. during 1935. In addition to the handling of this crude, shipping points and refineries along the coast receive crude from all sections of inland Texas and Louisiana, Arkansas, Oklahoma and New Mexico. Gulf Coast water shipments during 1935 exceeded 350,000,000 bbls. Of this figure, approximately 45 per cent represented crude movement and 55 per cent the coastwise and export shipment of refined products. Nearly 166,000,000 bbls. of refined products, chiefly gasoline and fuel oils moved to coastwise markets in 1935 and more than 26,000,000 bbls. were exported to foreign countries.

The total volume of crude and refined products leaving the Gulf Coast section by water equals roughly 50 per cent of the total volume of crude produced in the six Mid-Continent oil states in 1935. Considering the appreciable volume of products absorbed by domestic demand within the Mid-Continent, and the proximity of the northern states of the area to great central markets, the magnitude of crude movement to the Gulf Coast gives that area a major share of the Mid-Continent industry.



Stabilizer and absorber serving pressure stills at the Port Arthur refinery of the Gulf Oil Corporation of Pennsylvania

The bulk of crude entering the Gulf Coast from inland fields is moved in 32 trunk pipe lines. These lines converge at six general districts: the Mississippi area, Lake Charles, the Sabine district, the Houston-Texas City-Galveston area, Corpus Christi and the Lower Rio Grande Valley. The great majority of these lines terminate at the refineries and shipping terminals of four cities, namely Houston, Texas City, Beaumont and Port Arthur. Although these ports and refining centers owe their original start to the fields of the Gulf Coast, the principal factor in their great development in recent years is the East Texas field. Ideally located at the natural point of outlet for East Texas crude, these ports handled vast quantities of the oil moved by pipe line and rail. Besides the outlet offered by established adjacent pipe lines which tied into the field, several lines were laid connecting the field with refineries and ports in this area.

A total of 26 trunk lines ranging from 8 to 12 inches converge on the Sabine and Houston areas. The Humble Pipe Line Co. moves crude in lines from Luling, Corsicana, Mexia, East Texas and many other intermediate fields to Humble Oil & Refining Co.'s refinery at Baytown. Magnolia pipe lines converging at Beaumont extend to East Texas, Louisiana, Arkansas, West Texas and Southwest Texas fields. Lines from Oklahoma, East Texas and West Texas operated by the Gulf Pipe Line Co. terminate at the Gulf refinery at Port Arthur.

The Texas Pipe Line Co. connects fields in all sections of Texas, Oklahoma, New Mexico, Arkansas and Louisiana with refineries at Houston, Port Neches and Port Arthur. The Houston refinery of the Shell Petroleum Corp. is fed by lines from East and West Texas. The Stanolind Pipe Line Co. operates a line joining the Pan American Petroleum Corp.'s refinery and loading docks at Texas City with fields of East and West Texas. Another line operated by Stanolind and Sun Pipe Line Co. terminates at the mouth of the Sabine River. The Sinclair Prairie Pipe Line Co. moves East Texas, and Oklahoma crude through its lines to Smiths Bluff and Houston. The Atlantic Pipe Line Co. gathers crude from Hobbs, N. Mex., and intervening fields in one line and East Texas crude in another, both terminating at Atreco where the Atlantic Refining Co. is building a refinery and where crude has been shipped to the East Coast. The Pure-Van Pipe Line Co. moves crude from the Van field in East Texas to the Pure Oil Co. refinery at Smiths Bluff.

Besides these large lines, a multiplicity of other lines connect Gulf Coast fields with refineries and terminal storage farms. Although the greatest volume of crude is moved thus in pipe lines, appreciable quantities of crude are still handled by tank-car. In the Gulf Coast of Eastern Texas and Louisiana, pipe line movement gives place to canal shipment by barges. This is due primarily to the accessibility of these Gulf Coast fields to shallow water transportation, and also to the difficulty in laying and maintaining pipe lines in the marshy low terrain. Much crude which is piped in from fields is loaded on barges in this area, and shipped by canal to the refineries of the Sabine area, or transferred to ocean-going tankers for export or coastwise shipment.

In order to handle the crude and refined products shipped from Gulf Coast ports, a line of terminal tank farms and docks representing many millions of dollars investment extends from Mississippi River to Rio Grande. The Mississippi River area comprising deep water frontage from Baton Rouge to the delta handles oil by pipe line, barge and tanker. It serves as a point of entry for much of the incoming traffic in oil supplies shipped down the river from the steel centers of the East. The river is navigable for ocean tankers throughout this area, and another outlet is furnished by the Intracoastal Canal westward to the Lake Charles and Sabine districts. Thirteen terminals and four refineries are located within this area; some of the terminals being operated principally for bunkering stations.

At the Garden Island field near the extreme end of the delta the Texas Co. is now building a short line extending to deep water for the loading of ocean tankers. Crude has heretofore been

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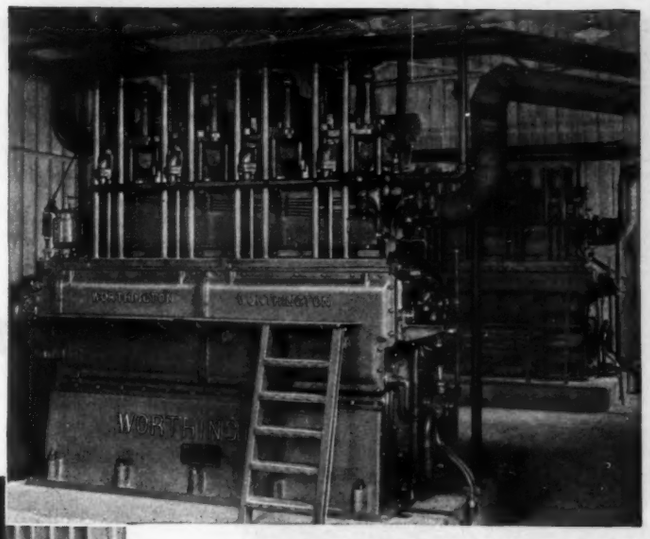

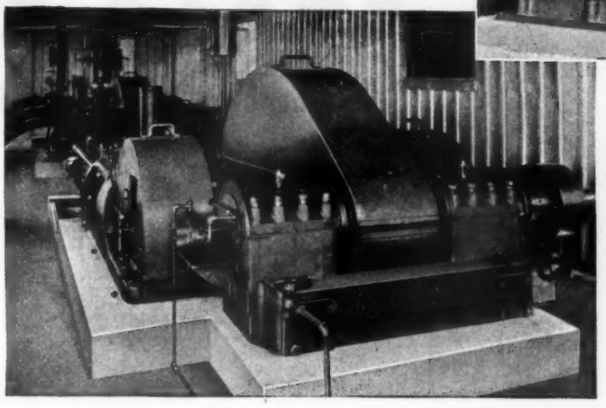

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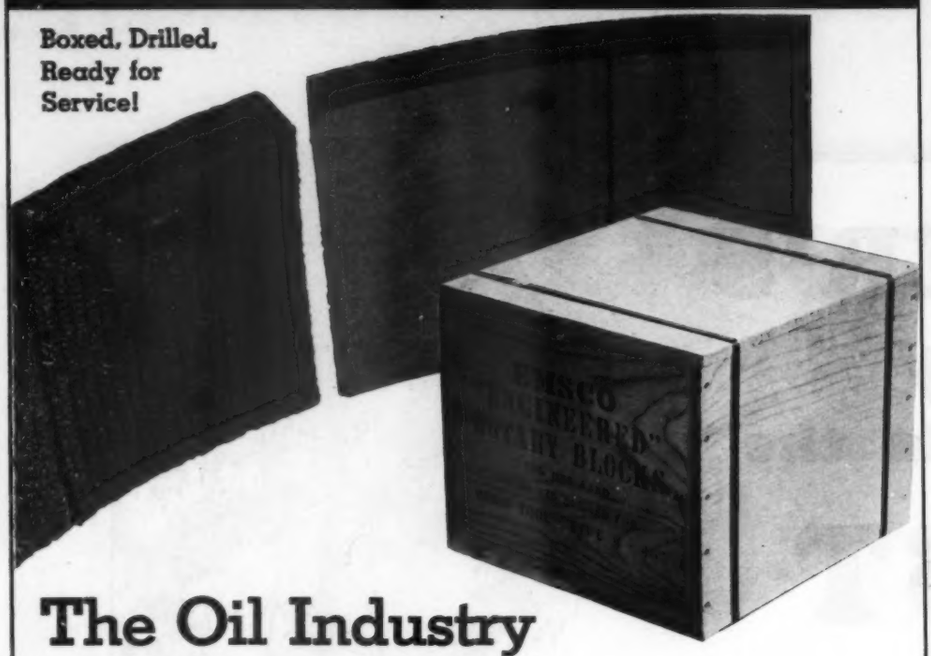

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barged from this field up the river to the company's Marrero terminal at New Orleans, where tankers load, to Port Arthur. In Terrebonne Bay production from seven small fields is stored in obsolete ocean tankers which are sunk in the shallow water serving as gathering points for the crude. From Lake Pelto or Port Texaco the crude is barged to Port Arthur.

In and around New Orleans, 110 miles from the mouth of the river are three refineries with a total capacity of 44,500 bbls. per day, operated by the Chalmette Petroleum Corp., Pan American Southern Corp., and Shell Petroleum Corp. Each of these plants has terminal facilities. Other terminals in the vicinity are operated by the Texas Co. at New Orleans, General American Tank Storage & Terminal Co. at Avondale, Westwego and Goodhope, The Standard Pipe Line Co. at Avondale, Carson Petroleum Co. at St. Rose, the Cities Service Export Co. at St. Rose, the North American Trading Co. at Westwego and others.

Baton Rouge is the terminus of two pipe lines, the Texas Co. line from the Port Barre field, and the Standard Pipe Line Co.'s line from DeQueen, Ark. The 90,000-bbl. refinery of the Standard Oil Co. of Louisiana is also located there with complete terminal facilities.

In the entire Mississippi area a total loading rate of about 60,000 bbls. of crude and 54,000 bbls. of refined products per hour is possible. This area has in the past handled much crude from the East Texas field. Berthing space for approximately 12 vessels is provided by the docks of this district.

Lake Charles

The next center for oil shipping west of the Mississippi is at Lake Charles, La. Although much of the water frontage in this district is not sufficiently deep to accommodate ocean tankers, a great volume of barge shipments passes through to the refineries of the Sabine area. Four principal terminals are located here; the Union Sulphur Co.'s property at Lockport, The Magnolia Pipe Line Co. terminal at Lockport, and another up the river for the Iowa field, the Shell Pipe Line Co. terminal at Haymark and a terminal now under construction for the Continental Oil Co. at Lake Charles. In addition to these, many canal terminals are operated, handling the quantities of crude moved along the system of canals which forms a network in the area. A loading rate of 20,000 bbls. of crude per hour is maintained by terminals in this section with berthing space for five vessels.

Navigable frontage in the Sabine area comprises the Sabine Pass, Sabine Lake, and the navigable waters of the Sabine and Neches Rivers. Here are located a total of five refineries including three of the largest in the world. The total refining capacity in the area is 312,000 bbls. per day with an additional cracking capacity of 88,000 bbls. Refineries of the Gulf Oil Corp. of Pennsylvania and the Texas Co. are located at Port Arthur on Sabine Lake. On the Nueces River, The Texas Co. operates another plant, manufacturing asphalts with dock facilities at Port Neches. The Pure Oil Co. refinery is located at Smiths Bluff, also on the Neches River. The largest refinery of the district is that of the Magnolia Petroleum Co. at Beaumont with an outlet to deep water through the Neches River.

In addition to extensive loading docks at all refineries in this section, the Atlantic Pipe Line Co. operates a large terminal at Atreco where a new refinery is now under construction. The Atlantic terminal offers the fastest turnaround with a rate of 20,000 bbls. per hour and loading berths for two ships.

The Humble Pipe Line Co. operates a small terminal at Neches, the Sun Pipe Line Co. maintains one at Sabine Pass and one at Nederland on the Neches River, the Stanolind Crude Oil & Purchasing Co. now operates the former Yount-Lee terminal at Beaumont and the Magnolia Petroleum Co. has dockage at Nederland.

Altogether there is approximately a total loading rate of 83,000 bbls. per hour for crude and 70,000 bbls. per hour for refined products in this district. Berthing space for over 27 vessels is maintained. Early development of this area came with the opening of the Spindletop field south of Beaumont. Proximity to the Gulf of Mexico made possible by the dredging of the Sabine-Port Arthur

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canal together with the development of Gulf Coast and other Texas fields, chiefly East Texas has been responsible for the concentration in this area of one of the greatest refining areas in the world.

The ports of Galveston and Texas City are among the oldest on the Gulf Coast. Consequently when the need for shipping points in the oil industry arose, this section of the coast developed rapidly into a major center for pipe line and railroad terminals. With the construction of the Houston Ship Channel linking that city with deep water through Galveston Bay, the San Jacinto River and Buffalo Bayou, facilities for terminals and refineries increased to such an extent that the area including Houston, Texas City, Galveston and all points along the ship channel embraces more pipe line terminals and refineries than any other on the Gulf Coast. At the present time there are 11 refineries in this district maintaining loading docks for ocean-going tankers. More than 25 terminals and loading points including those at refineries now line the navigable frontage from Galveston to Houston. Refineries in this section have a total capacity of 323,000 bbls. per day, more than 80 per cent of this capacity being maintained by four plants of the Humble Oil & Refining Co., Shell Petroleum Corp., Pan American Petroleum & Transport Co. and Sinclair Refining Co. Cracking capacity in five refineries of the area totals 74,500 bbls. per day.

Houston Area

In the Houston area are six refineries operated by the Shell Petroleum Corp., American Petroleum Co., Crown Central Petroleum Co., Texas Co., Sinclair Refining Co. and Eastern States Petroleum Co., Inc., the latter formerly the Deepwater Oil Refineries, Inc. Loading terminals for crude and refined products are also maintained here by the Coastal Oil & Transport Co. and Channel Transportation & Marketing Co.

At Baytown, the Humble Oil & Refining Co.'s 115,000-bbl. refinery is located together with a terminal handling the refined products. The Gulf Pipe Line Co. operates a terminal for crude at Lynchburg.

In the Texas City area are located five refineries owned by the Pan American Petroleum & Transport Co., Stone Oil Co., Republic Oil & Refining Co., Southport Refining Co. and Bennett Refining Co. with tanker loading facilities maintained at four of the plants. Five other terminals are located here, operated by Humble Pipe Line Co., Atlantic Pipe Line Co., Hartol Products Co., Independent Terminal Co. and Continental Oil Co. At Galveston, four terminals operated principally as bunkering stations are now inactive.

The total loading rate of terminals in this area embracing Houston, Texas City and Galveston totals approximately 100,000 bbls. per day for crude and 90,000 bbls. per day for refined products. Docks for the simultaneous loading of more than 27 tankers make this area the greatest on the Gulf Coast from the standpoint of shipping facilities.

Corpus Christi

The Corpus Christi district embracing Harbor Island, Ingleside and Corpus Christi, although one of the minor shipping points on the coast, is seeing rapid development. The first crude terminals in the district were built on Harbor Island adjacent to the entrance to Corpus Christi Harbor at Aransas Pass. Here the Humble Pipe Line Co. and Atlantic Pipe Line Co. maintain crude shipping terminals with total storage of 1,430,000 bbls. and berthing space for three ships. The reputation of the quickest turn around in the world is given this port. A record average loading rate of 26,000 bbls. per hour is credited the Humble terminal there. At Ingleside, the Humble Oil & Refining Co. operate a 15,000-bbl. refinery and maintain loading facilities for refined products.

Two chemical fire trucks, each containing 3,600 pounds of powder, hose, generator and miscellaneous equipment at the Pan American Refining Corp. Texas City refinery

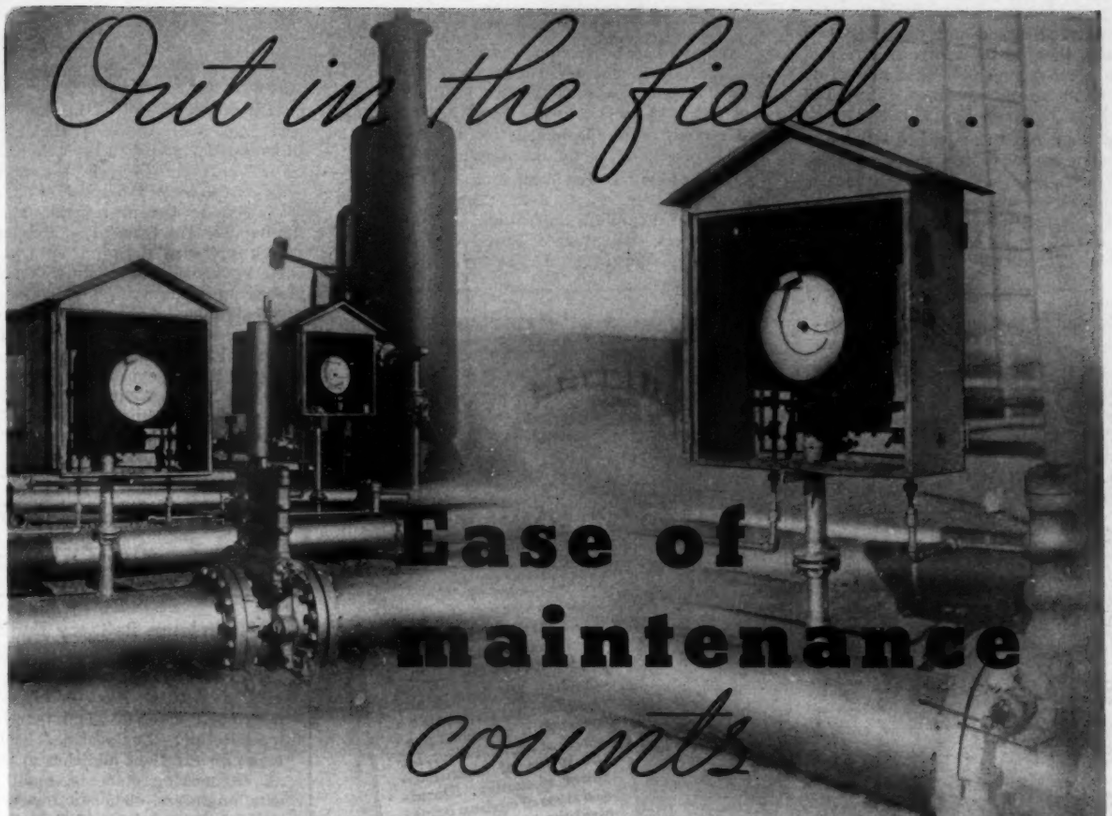
Three terminals are located on the turning basin of Corpus Christi Harbor. The largest is operated by the General American Tank Storage & Terminal Co. The Texas Co. terminal handles crude from four pipe lines entering the Corpus Christi district. The third terminal, now under construction for the Crude Oil Pipe Line Co. will store crude moved in through the company's new line from the Loma Novia field. A second oil dock is now under construction in Corpus Christi Harbor to handle the increased traffic which that area has seen in the past few months. The new dock will raise the total berthing space for the area to six vessels.

Nine pipe lines terminate in this district, three of which bring crude from outside the Gulf Coast area. The Humble Pipe Line terminates three lines at Ingleside and Harbor Island. These lines extend to nearby Refugio County fields, Southwest Texas, and West Texas. With the exception of the Crude Oil Pipe Line Co. line from Loma Novia, the other lines are short feeders from fields in San Patricio, Nueces and Refugio Counties.

During 1935, more than 25,000,000 bbls. of crude and refined products were shipped from this area. Although the volume moving out of Corpus Christi Harbor is a relatively small percentage of this figure, representing about 20 per cent, the traffic more than doubled in 1935, and present indications point to even greater expansion.

The newest of all oil shipping ports on the Gulf Coast is located at Port Isabel near the mouth of the Rio Grande River. Late last year the oil line of the Valley Pipe Line Co. was completed linking the Samfordyce field 90 miles inland with deep water. A refinery was also built at this port by the Coastal Refineries, Inc., which processes all crude runs in the line. One dock in the new harbor handles the refinery products which consist mostly of furnace oils moving to the East Coast.

Since the bulk of Gulf Coast crude and refined



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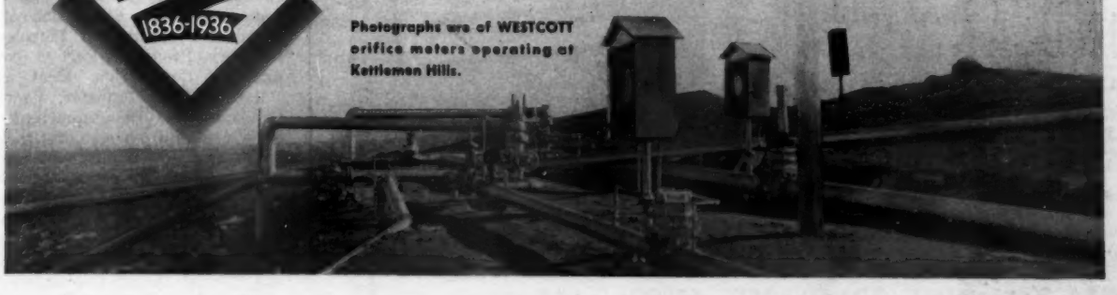

shipments find their way to markets of the East Coast, the volume of tanker movements is dependent on the conditions of those markets to a considerable extent. Formerly during the winter months when gasoline demand was lowered, tanker shipments to the East Coast declined correspondingly. However, the recent widespread demand for furnace oils in domestic and industrial heating has greatly added to the winter traffic, tending to balance the reverse trend of gasoline demand. Heating oil shipments, because of relatively less storage facilities in the East, do not begin to rise until October. The movement continues until February or March.

There are, at the present time, about 350 American owned tankers in service on the Gulf Coast tanker rates which have been low for the past seven years range from a low of 15 cents to 35 cents per barrel. At present clean or refined oils are shipped at a rate of 25 cents per barrel and fuel oil at 29 cents. These rates apply to shipments from the Gulf Coast to the East Coast north of Hatteras and northeast of New York City.

A great number of foreign tankers call at Gulf Coast ports. They handle practically all of the foreign traffic because of the low rates which they accept.

I.P.A. Legislative Committee

Announcement has been made at the national headquarters of the Independent Petroleum Association of America that Charles F. Roeser, president of the association, has appointed the executive committee of the association to serve as the legislative committee for the present fiscal year.

This committee is composed of Charles F. Roeser, president; H. B. Fell, executive vice president; Wirt Franklin, immediate past president; N. T. Gilbert, treasurer; J. Steve Anderson, Oklahoma City, Okla.; H. M. Stalcup, Tulsa; J. S. Bridwell, Wichita Falls, Tex.; W. R. Nicholson, Longview, Tex.; Marvin Lee, Wichita, Kans.; H. D. Atha, Mount Pleasant, Mich., and Ralph T. Zook, Bradford, Pa.

A meeting of the executive committee will be held at the Biltmore Hotel at Oklahoma City, Okla., on Friday, March 13, immediately following the adjournment of the meeting of the Interstate Oil Compact Commission.

Back-Pressure Data

Operators interested in the production of natural gas will welcome the recently published Monograph 7 prepared by E. L. Rawlins and M. A. Schellhardt, respectively senior petroleum engineer and associate natural gas engineer with the U. S. Bureau of Mines at the experimental station at Bartlesville, Okla. The monograph is entitled "Back pressure data on natural gas wells and their application to production practices." Tables, graphs and diagrams and many examples of production problems are worked out clearly.

The state of Oklahoma and the natural gas department of the American Gas Association cooperated in the experimental work on which the report is based. Copies may be secured from the U. S. Bureau of Mines, Department of the Interior, Washington, D. C.

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IMPORTANT BOOKS for the Oil Man

"Petroleum Refinery Engineering"

W. L. Nelson, consulting engineer and professor of petroleum refining at the University of Tulsa, has recently had published a valuable reference and text book, "Petroleum Refinery Engineering." The volume will make an excellent addition to the library of all engineering students, plant superintendents, engineers, chemists, foremen and scientists who may wish to follow the application of their theoretical work. In presenting this valuable book the author emphasizes the practical phases of engineering work and offers a thorough presentation of the fundamentals of refinery engineering and processing. This book should be of great aid to refinery engineers by clarifying the many detail questions that arise in plant operations.

The volume is divided into four parts containing 27 chapters, all of which are adequately illustrated, and contains a comprehensive treatment of modern processes such as solvent refining and dewaxing, vacuum distillation and chemical and clay treating. Each chapter is complete in detail and includes numerous references to current literature which will save the busy engineer much time in tracing down some detail in question.

Part 1 of the volume is divided into Chemical Engineering and Petroleum Engineering, History and Development of Refining and Introduction to Processing. Part 2 consists of Composition of Petroleum, Routine Laboratory Tests, Design Data and the Laboratory, The Evaluation of Oil Stocks, Physical Properties of Petroleum Oil, and Refinery Products. Part 3 comprises Hydraulics, Combustion, Heat and Material Balances, Heat Transfer, Vaporization and Condensation, Countercurrent Operations, Corrosion and Theory of Cracking. Part 4 on plant processing is made up of Distillation Processes, Exchangers, Coolers, Condensers, and Steam Heaters; Tubestill Heaters, Fractionating Towers, Cracking Processes, Natural Gasoline, Chemical and Clay Treating, Dewaxing, Economics of Design and Typical Design Calculation.

"Petroleum Refinery Engineering" may be purchased through the Book Department of The Oil and Gas Journal at the regular price of $6.00, express prepaid. A copy will be forwarded promptly upon receipt of check or money order for that sum.

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Exploring in Marsh and Water Areas of Louisiana and Texas Gulf Coast

By J. W. FLUDE
Independent Exploration Co., Houston, Texas

For a number of very good reasons, many companies are turning their exploratory attentions to the marsh and water areas of Louisiana and Texas. This sector of the Gulf Coast has had very little geophysical consideration since the refraction seismograph search for shallow domes ended in 1930.

There are several reasons for this renewed interest. The most important reason is that there are several fields now producing, hence productivity is certain. So little work has been done that it is practically a virgin field for exploration. Another very attractive reason is that the ownership is in large tracts and large blocks can be assembled at usually moderate prices. We can also say that enough pioneering in both exploration and development has been done to assure us that the cost will not be prohibitive.

Along the entire length of the coast line in Louisiana there is a strip of land and water varying between 20 and 40 miles in width. The land areas in this strip consist almost entirely of marsh and though there are a few roads crossing the marsh it is impossible to use the ordinary forms of motor transportation in exploring the marsh land. The marsh is covered with grass varying in height from 1 foot to 8 feet and walking, even without a burden is very fatiguing. There are numerous "alligator holes," difficult to see, into which the unwary pedestrian may fall.

This land, agriculturally useless, is owned principally by fur companies and fur and oil are its only economic virtues to date.

The marsh is crossed by many bayous and rivers which empty into lakes and bays along the coast. The lakes and bays range from mud flats to 9 feet in depth. The bays are usually quite large; in fact one cannot see across most of them and some are large enough so that one is out of sight of land when in a boat in the middle of the bay.

State Jurisdiction

There is very little marsh land in Texas but the water areas are similar in type and size to those in Louisiana. There are a greater number of roads to the coast and even a few along the coast. Due to this, there has been more coastal exploration in Texas than in Louisiana. The states have jurisdiction over their territorial waters and permission must be obtained before exploration can proceed. The state governments also require the presence of a conservation agent with each seismograph crew operating on the water; his duty being to observe the number of fish killed, if any, and report this information to his superiors. To date, even with large amount of explosives required in refraction exploration no unfavorable reports have been made.

The states also have jurisdiction over the waters of the Gulf to a line 3 miles from their coast. Permission must be secured from the state government to explore this area with a seismograph.

Outside of the 3-mile zone, in the Gulf proper, it is probable that anyone could carry on any exploration program without permission. Probably no government has jurisdiction over these waters, although there is some reason to believe that the jurisdiction of the state of Louisiana extends indefinitely into the Gulf.

Comparing this marsh and water area with adjacent land areas brings the certain conclusion that many new fields will be found within the boundaries of the former. About 20 new fields have been found on the Gulf Coast by improved geophysical methods since 1932. Only three of these, Lafitte, Big Lake and Turtle Bay are in this tide water province. Lack of exploration is primarily the reason for this small number.

Geophysically this marsh and water territory presents no new problem. The results obtained are comparable in quality to those of any other area. Both the torsion balance and the seismograph have been used with good effect on these water and marsh covered areas.

The principal obstacle to exploration is of course the necessity for unusual forms of transportation. Boats are required and often other forms of transportation equipment as well. If operations are carried on very far from a town, the crew must live on a house boat to work efficiently. This expense, though it raises the cost per acre of exploration only slightly, does raise the cost per month or per year materially, and where budgets are figured closely, those in charge of exploration, have, in the past, preferred working under more favorable conditions.

Most of the reflection seismograph work that has been done in the tidewater province has been marsh work. Some water shooting has been done in the lakes and bays but only a few scattered shots have been fired in the Gulf. Nearly all of this work has been done by the larger companies such as the Pure, Humble, Texas and Shell companies and the Louisiana Land & Exploration Co. This latter company owns a large amount of marsh land in fee and also has leases from the state of Louisiana on some of the lakes and bays of southern Louisiana.

To anyone contemplating water or marsh exploration we should like to emphasize the importance of good transportation equipment. Skimping on the number of pieces or the quality of the equipment is a very short-sighted policy. An extra piece of equipment often saves many times its cost and if the transportation problem is properly solved the work may proceed as quickly as on dry land.

It would be well to make sure that the seismograph equipment is built to withstand the excessive moisture certain to be encountered, and that it is rugged enough to function properly after rough handling. If possible, men experienced in this type of work should be included among the personnel.

For marsh exploration, "marsh buggies" are essential. These are usually made from light automobiles by changing the gearing and by increasing the width of the wheels to about three feet by means of wooden slats held in place by steel hoops. The Continental Oil Co. has built another type that seems to be very satisfactory. They use

Geophysical equipment being assembled on barge for trip into swamp district

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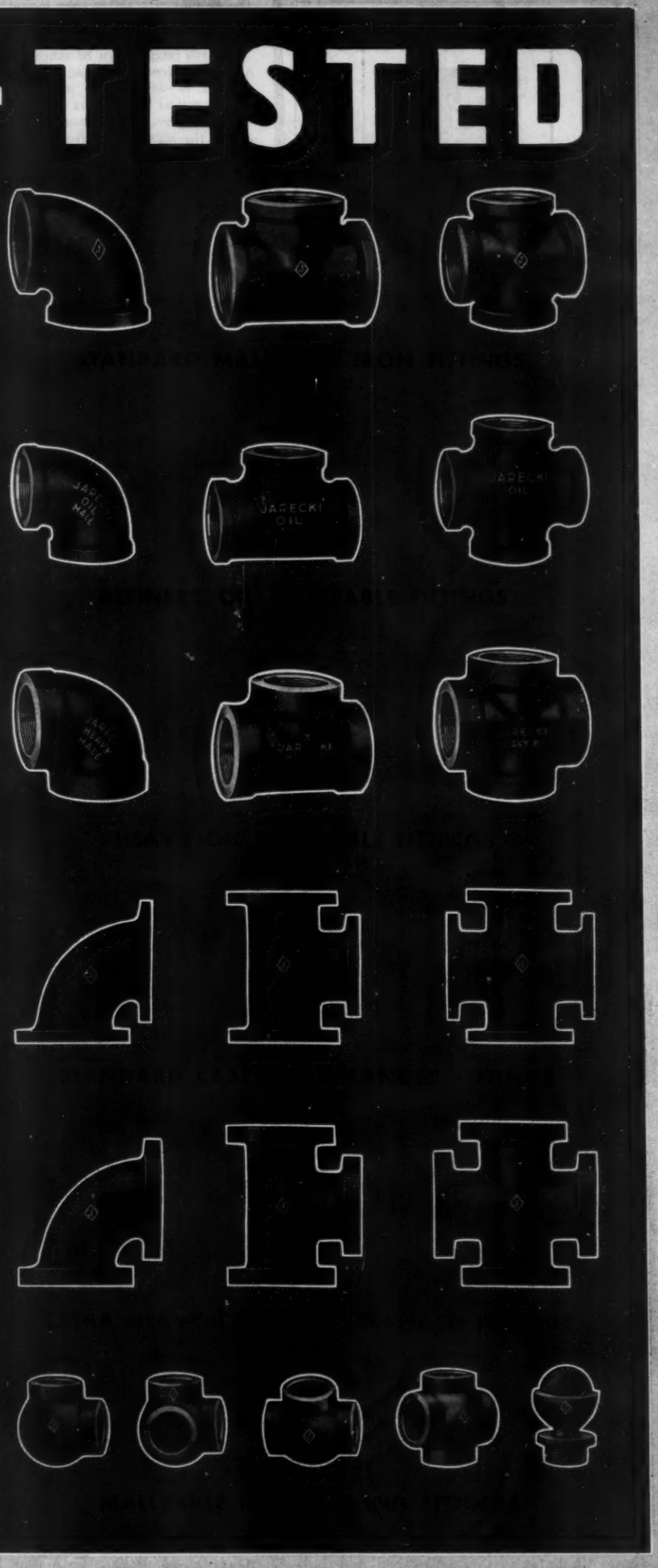

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large sized tractor tires on a 1½-ton truck. As the ground gets softer they mount more tires and, we understand, may use four or five tires on each rear wheel.

Marsh buggies can be rented but many of these are of ancient and poor construction, so if the amount of exploration to be done warrants it, by all means build your own.

Very often one or more boats will be needed to get the men to and from work. As pointed out above, a house boat may be required for efficient operations. Now and then a barge will be needed to ferry the equipment across a bayou or river.

For operations in bayous, rivers, lakes or bays, boats are the only means of transportation. However, before renting boats one must find out something about the water where the work is to be done. If the water is 3 or more feet deep the problem is simpler because many boats can be found that will be able to operate in this depth of water. If the work is in open water, fishing boats or cruisers should be rented. Smaller and cheaper boats can be used in sheltered waters.

If the water is less than 3 feet deep, shallow draft boats must be found. They are often difficult to locate. Extra power is useful in shallow water to help the boat over bars or off mud flats. With plenty of power, boats of 2 feet draft have been known to cross lakes whose average depth was 1 foot. Whenever possible boats should be rented with real marine motors rather than converted automobile motors.

Logically a crew would need as many pieces of transportation equipment in marsh or on water as would be used on dry land. Usually crews get along with less than they really need and efficiency is sacrificed.

Surveying is a little extra trouble. It isn't so difficult to lay out positions and prepare a map of the work itself but there are available few bench-marks, and so the usual maps of this area are inaccurate to the extent that it is difficult to place the work on a base map. Accurate airplane maps are of great assistance.

Out in the Gulf proper very little exploring has been done; in fact, only a few depths have been shot in working out some prospect lying within the coast. This work was performed with ordinary boats and in favorable weather. It would be difficult to carry out any large program in the Gulf without good sized, powerful boats. They must be safe enough to weather ordinary storms and fast enough to get back to harbor at night. Boats meeting these specifications are difficult to find and expensive to rent. It might be cheaper to buy or charter a small steamer or diesel engined boat and anchor in the Gulf at night. Any program for covering Gulf waters which does not include the use of good sized boats will quite probably demonstrate the meaning of expensive economy. We remember one refraction crew that waited in Galveston two weeks for the winds to diminish so that the water would be quiet enough to permit recording.

Perhaps off-shore explorations, beyond the 3-mile limit, will only be undertaken by the larger companies Certainly a party engaged in this work would have to live in the Gulf for long periods

Geophysical crew operating with marsh "buggies" in marsh district, south Louisiana

of time and this might demand the use of a ship on which the men could have some of the comforts to which they were accustomed on shore. To reduce the cost a little it might be possible to work two shifts but it is doubtful that work could go on after dark.

Whenever an attempt is made to work under unfamiliar conditions a little time is required to adjust old practices to the new tools. It usually takes about one week to get things working smoothly. Short jobs of water or marsh work are expensive for this reason. If some of this work is to be attempted, it would be wise to cover as much territory as possible. Two months is close to the minimum assignment for efficient operation.

In this, as well as any other type of exploration, experience has shown us that the companies which choose a general area and cover it thoroughly find more prospects than those who cover "hot" and scattered spots.

Increased Construction of Pipe Lines Recently in South Louisiana Area

The building of pipe lines in Southern Louisiana has never become a general practice for two principal reasons. Most of the production in the swampy region is located adjacent to some kind of water transportation, thus removing the necessity of pipe line installation for movement of the oil, and further, the moist salt condition of much of the terrain makes the laying and maintenance of lines a difficult and expensive proposition.

The past few months has, however seen an increase in pipe line building. These lines are for the most part short links between the fields and deep water terminals, thus eliminating the

Part of the right-of-way of the Tepetate gas and oil lines is through swampy country

View of two completed lines laid simultaneously from the Tepetate field to Lake Charles

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slower movement of oil in barges and facilitating the direct loading of large capacity tankers. The Texas Pipe Line Co. operates a line from the Port Barre field to Port Allen located on the Mississippi River near Baton Rouge. Production from the Roanoke and Iowa fields is given outlet to the Intracoastal Canal through lines maintained by the Shell Pipe Line Co. and Magnolia Pipe Line Co. terminating at Lake Charles, and the Pure Oil Co. pipes its production from Bosco and Gueydan to the Intracoastal Canal through which it is barged to Smiths Bluff.

The latest pipe line outlet built for a field in this area was completed March 25 by the Apex Construction Co. of Houston for the Continental Oil Co. The project consisted of laying two lines, one for gas measuring 8⅝ inches and one 6⅝-inch line for oil, from the Tepetate field in Acadia Parish to a point near the Mathieson Alkali Works on the west side of the Calcasieu River near Lake Charles, La.

Production in the Tepetate field is owned entirely by the Continental Oil Co. The field was opened in August, 1935, when the company's No. 1 T. Ortego was completed at 8,313 feet for an initial production of about 400 bbls. per day together with 2,740,000 feet of gas. Since that time, eight producers have been added to the field with a potential production totaling nearly 3,300 bbls. per day. Production is entirely from the 8,300-foot horizon and high pressures ranging from 1,000 to nearly 3,000 pounds are encountered in producing the wells. Considerable gas is produced and this large production of gas will be processed in a new natural gasoline plant now under construction in the field by the company, and the residue will be piped in the new line for use at the Mathieson Alkali plant at Lake Charles.

The simultaneous laying of oil and gas lines in the same ditch coupled with the varied conditions of terrain traversed by the lines made this an unusual project. The total distance from the field to Lake Charles is approximately 45 miles and several different types of ground were encountered along the right-of-way. Eight miles of the project is through timber land, 2½ miles through swamp land, 10 miles through pasture

After the Tepetate lines were completely welded they were coated and lowered into the ditch with a boom operated from a tractor

and 24 miles through cultivated and prospective rice fields. Two large water crossings were made at the Calcasieu River and English Bayou, and five other major bayou crossings were encountered in addition to several minor streams, irrigation ditches and railroad and highway intersections.

In traversing the rice fields many small levees built for the purpose of holding water had to be cut and later rebuilt. Due to the laying of the lines during the months of February and March, however, no growing rice was encountered in this area. Farmers do not start planting until late March and it is generally May before the fields are flooded. From May to the latter part of August most of these fields are covered by several inches of water.

Both sizes of the pipe were hauled and strung along the right-of-way simultaneously. The 6⅝-inch and 8⅝-inch pipe was supplied in standard weight, double random length and the lines were welded throughout. All rolling welds, those made while pipe is placed on dollies and rolled, were made by the electric method, consisting of a three beaded weld using coated rods. The pipe was lined up on skids, placed in dollies and welded in approximately 240-foot sections. Bell-hole or position welding of these long sections was then done by the acetylene method. About four-fifths of the welding was done electrically.

Before lowering into the ditch, the two lines were cleaned and coated for protection against corrosion at points where swamps existed. A ditch approximately 32 inches in width was dug to a minimum depth of 30 inches and the lines were laid side by side after being completely welded. Wooden blocks were placed between them at regular intervals.

At railroad and highway crossings the lines were laid inside separate protective steel casing according to the usual practice. Where the lines crossed the Calcasieu River and English Bayou, they were also encased; the 6⅝-inch line in an 8⅝-inch casing and the 8⅝-inch line in a 10¾-inch casing. The ends of these casing sections were then sealed after grease had been pumped into the annular space between line and casing. River clamps were then placed on the completed sections.

Upon completion, the lines were subjected to two tests, an air test and a hydrostatic test.

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GRANT TYPE "C" ROTARY UNDERREAMER

Figure 1. The expansion of the Grant Type "C" Underreamer is "positive" because the cutters move outward in a line at right angles to the axis of the tool when they contact the formation. The weight of the drill pipe forces the mandrel down behind the cutter holders while the cutters retain their original position against the formation.

Figure 2. The roller cutters remove formation as the underreamer is rotated and cut their way out to the full expanded position. Note that the cutters are completely backed up by the mandrel. The amount of expansion is positively governed by the diameter of the mandrel. Continued contact with the formation keeps the cutters expanded.

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HOW THE TYPE "C" UNDERREAMER OPERATES

While the spring-expanded Type "C" Underreamer is being run into the hole the cutters are held in the collapsed position by the casing. Upon passing the casing shoe the cutters are lifted into contact with the formation by spring and hydraulic pressure, as shown in Figure 1. When rotation starts and part of the weight of the drill pipe is applied, the cutters retain their contact with the formation while the mandrel is forced down between them more and more until the cutters have removed enough of the formation to allow them to expand fully and become completely backed up by the mandrel, as shown in Figure 2. Thereafter, the cutters are held positively in the full-expanded position by continuing contact with the formation.

The Grant Type "C" Underreamer is used in all formations—hard, abrasive, or soft—to enlarge the hole. Run it also as a feeler before setting casing. Then, when a tight place is encountered in the hole you have only to attach the kelly and rotate the underreamer to remove the obstruction, thus saving a round trip of the tools. Its many uses are described in the Grant section of your 1936 Composite Catalog and in a bulletin which we will gladly send you.

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The Grant 2-Blade Rotary Wall Scraper has a far greater cutter expanding capacity than can possibly be supplied by a positive-type underreamer such as the Type "C" Underreamer. Depending on the size of the body and gauge of cutters used, the cutting diameter may be varied in ¼ inch steps from 4 to 29 inches.

When running in the hole the blades are retained within the body. Upon passing out of the casing shoe, the blades are moved upward and outward in an arc by hydraulic pressure when circulation starts. The top cutting shoulders of the blades contact the formation first, and gradually cut clearance for further expansion as the tool is rotated, as shown in Figure 3.

The Grant Wall Scraper is widely used to enlarge the hole in formations that are successfully cut with a drag-type bit and are soft enough to allow the blades to cut their way to the full expanded position shown in Figure 4. Because its blades will reach out far beyond the diameter of the casing through which it is run in cases where the Grant Type "C" or Type "A" Underreamers cannot furnish sufficient expansion, the Wall Scraper removes the heavy mud or other encrusted material from the face of oil sands. This often makes a commercial producer from a well that might otherwise become a total loss. Given the proper formation it is unsurpassed for enlarging the lower portion of the hole to provide ample clearance for a thick body of cement around and above the casing shoe, or to provide an enlarged reservoir for the accumulation of oil behind the liner.

Figure 3. The drag type blades of the Grant Wall Scraper open upward when circulation and rotation starts.

Figure 4. The Grant Wall Scraper blades, once they have cut their way to the full expanded position, are held open by continued hydraulic pressure and by contact with the shoulder formed below the blades.

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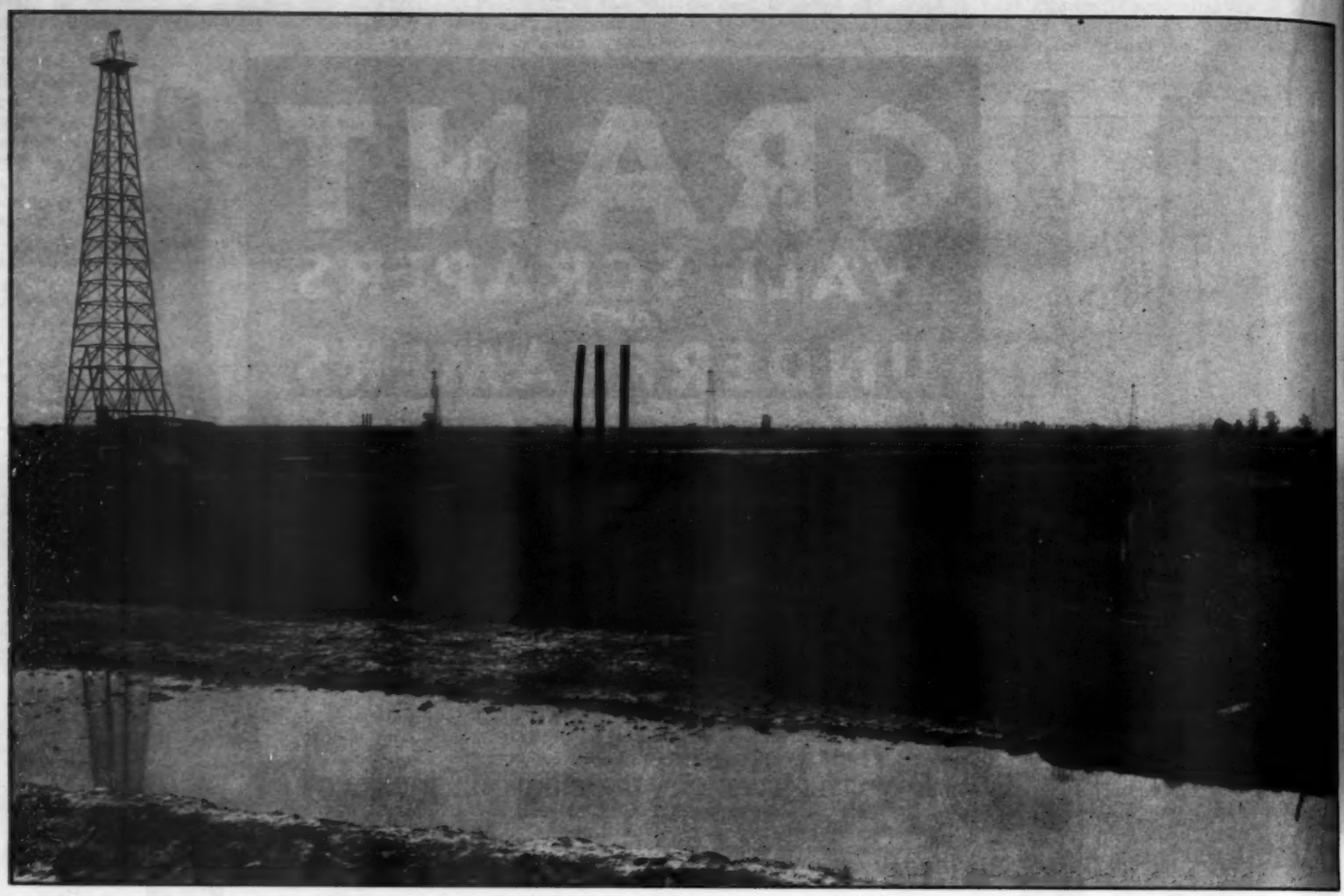

General view of the Hastings field, Brazoria County, being developed by the Stanolind Oil & Gas Company

GEOPHYSICAL GENERALITIES

By ROBERT P. CLARK
National Exploration Company

Geophysical exploration in the United States in 1935 was restricted almost entirely to the area bounded on the west by the Rocky Mountains and on the east by Florida with some washing over into California. The northern extent appears to be Montana but this supposition is largely based on lack of more definite information.

A large percentage of this program was carried out within 100 miles of salt water along the Gulf Coast. From the Rio Grande to the Suwannee River, torsion balance and seismograph crews stumbled over each other to the glee of the natives and the despair of the geophysical scouts. The greatest concentration was noticed between Baton Rouge and Victoria, where at times the influx of outlanders sent the price of accommodations into the stratosphere.

The Kansas-Oklahoma and West Texas areas were the scenes of considerable activity and of course Rodessa must not be forgotten.

There are rumors afoot as to seismograph crews in Illinois, Indiana and points north by east.

The activity followed the trends of former years. Torsion balance, pendulums, and/or gravity meters of some type did the reconnaissance with reflection seismograph shooting for the exact points. Some scattered magnetic work was done, mostly in Southwest and West Texas. The usual crop of "Mystery Instruments" was in the field but no outstanding successes were attributed to them. Whispered rumors that will not down continue to circulate to the effect that some of the research departments of certain majors are a long way on the road to success with radio and electric methods. It is possible, however, that someone is only having some low fun frightening the children.

Some refraction seismographs continue to operate, but with the exception of one unit such work was largely confined to West Texas.

There has been some advance in the technique of operations. The torsion balance has in recent years learned to swim and climb trees. Certain sections of the coast are habitually under water and because of that condition were formerly considered unworkable. This ground, if you can call anything covered with so much water by that name, falls into two classes, swamp and marsh. There is not much choice between them from the field man's standpoint.

A swamp, for the benefit of those fortunate enough never to have seen one, is a wet forest in the last stages of delirium tremens. The tall cypress trees are crowded apart by the gum, the gum trees are choked by the willow bushes, and the willows are stifled by a nightmare of what would be weeds anywhere else. Here they have grown to tree-like proportions and fill up the rest of the space. To keep it from being too easy, nature has further matted and interlaced the branches with poison ivy, woven them together with rattan, and braided them solid with wild grape-vines. A few vegetable vipers (name unknown—to the writer at least) twine in and out, concealing thorns like fish-hooks, and exposing an uncanny ability to whip out and catch their victim in the eye. The slime called water stands over this festering purgatory in depths from knee deep to many feet. It also provides a happy home for myriads of leeches, snakes, water-bugs, and alligators, to say nothing of micro-varmints such as typhoid, dysentery, etc. The remaining space above the water line is given over to spiders, hornets, mosquitos, deer flies, scorpions and a billion other varieties of poisonous or irritating pests. As a last straw, the snakes crawl up from this noxious cess-pool and drape themselves along the branches, about face high. Evidently even a snake can only take so much of it at a time.

To conduct a geophysical survey over such a terrain (sic) required a technique quite different from that used up until now. So the geophysicists

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took to boats and the science went marine. A few bayous interlaced the area and gave promise of access to the more remote regions except where choked with water lilies and hyacinths. One method of operation was to incarcerate the crew in a house-boat, tow them to some remote recess of this inland devil's island, and work from there. After six months of this, half of the crew would be in the hospital and the other half eligible for the nut-house. Another method was to park the crew in the nearest white settlement, drive as far as the car would go, and then take to the boats. In either method the only way of getting cross lines was to chop through the jungle and carry the equipment on the shoulders of the men.

The torsion balance huts lasted almost 24 hours after the crews hit the swamp. They were dropped in the first convenient bayou and replaced with tents or nothing. Many a T.B. station was made in 1935 by a naked instrument with no protection other than 20 miles of impassable jungle. The torsion balance is normally set on three pegs 7 inches above the surface of the ground. This proved impractical as the jungle is apparently growing on a thick chocolate pudding. After many months of thought some bright boy hit the solution. Saw down a tree and set up the instrument on the stump, just like that. One joker in the deck was, and still is, that a strong south wind will raise the water surface several feet over night and drown the instrument while a fresh norther will drive the water out and leave the instrument high in the air like a flag-pole sitter.

All in the day's work

The seismograph troops were even harder hit than the gravity boys. A torsion balance comes in three pieces and has a total weight of about 150 pounds. Seismograph equipment is usually quoted in car load lots, f.o.b. Houston. You have from 5 to 10 geophones, the same number of amplifiers, electric batteries for same, cameras, oscillographs, timing devices and assorted junk to the sum of a good load for a 1½-ton truck. Also, there are several thousand feet of electric cable and some dynamite, a couple of telephones and phone-line, hole drilling equipment, a mud pump, and a couple of hundred feet of casing. Yes, they shoot them deep in hte swamp. All this impedimenta must be man-handled from the boats back into the jungle to the shot-point and recording station. Production became a matter not of shots per day but of days per shot. To counterbalance this decline in production it became necessary to devise some method of operation by which the most possible information would be obtained from each shot. The result was a big advance in field and office technique. In a few years these forward strides of seismic practice will be common property but for the present they are jealously guarded secrets of the operators who keep at the head of the procession.

Marsh work was much the same as swamp

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work except that there were no trees to cut. (Neither were there any stumps to set the torsion balances on; it was lug in about 60 feet of 2x4 per station to use for pegs.) Marsh buggies reached a high stage of perfection. Driving a buggy through sea-cane 8 feet high has all the thrills of driving down the highway blind-folded. Unfortunately marsh-buggies could not be used advantageously at all times. Some marshes are so cut up by deep water channels that they are really a thousand submerged islands. On these jobs it was boats and strong backs that brought results.

Some open water work was done by both torsion balance and seismograph. The gravity work was done by setting the instrument on a telescoping tripod which was lowered through a hole in an anchored barge. It is reported that geophones were successfully planted in an upright position in 40 feet of water.

A couple of majors even went in for off shore shooting in the Gulf of Mexico.

Even with a very successful year behind, geophysics' face was rather red at times. Several pained gasps were heard when South Houston showed salt at 4,400 feet. A few bad busts were submerged in a flood of successful surveys. At that, several important lessons were learned from the study of mistakes. Single profile shooting showed a decline in the dip country and is apparently being superceded by total component work.

Riding a dynamite loaded boat into the swamps of Coastal Louisiana may have its thrills, but this geophysicist seems to have no concern at the moment

A few surprises, no fault of the geophysicist, popped up. One prospect with a reliably reported closure of 750 feet was dry, while another, almost adjacent, with a doubtful 50 feet of closure is making a nice field. So what?

Some of the organizations more active in geophysical work are: Amerada, Atlantic, American Geophysical, Benedum-Trees, Barnsdall, California, Clark, Continental, Coastal Oil Finding Co., Felmont, G.R.C., G.S.I., Gulf, Humble, Hord Exploration, Independent Ex., Louisiana Land & Ex., Magnolia, McCollum, National Ex., Ohio, Phillips, Pure, Petty, Republic, Sinclair, Shell, Skelly, Superior, Stanolind, Sun, Schlosser, T.B.X., Tide Water, Texas Co., West, Western and Vincent & Welsh.

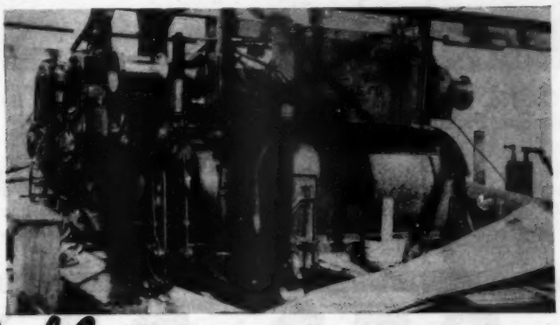
GEOPHYSICAL CREWS ACTIVE ON GULF COAST

Texas Counties

County—	Reflection	Torsion balance
Brazoria	4	1
Chambers	2	1
Galveston	3	0
Hardin	1	1
Harris	2	1
Jefferson	5	0
Liberty	2	1
Matagorda	3	2
Newton	1	0
Orange	5	0
Wharton	7	3
Brooks	0	1
Cameron	1	2
Hidalgo	2	1
Jim Wells	0	1
Kennedy	0	1
Nueces	1	2
Refugio	1	0
San Patricio	0	1
Willacy	1	0

Louisiana Parishes

Parish—	Reflection	Torsion balance
Acadia	3	0
Ascension	1	0
Avoyelles	1	0
Calcasieu	3	0



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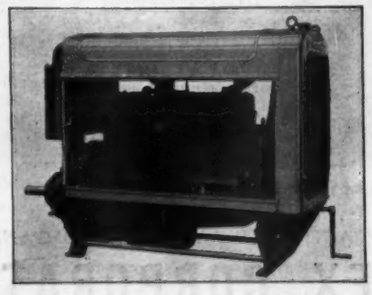
The engines used by Mr. Nunnelee . . . Waukesha High-Duty Sixes . . . are built to meet the demand for a modern portable power unit in the 80-125 hp. range that will stand up under severe continuous duty in the oil fields. Their design embodies such advanced features as removable wet sleeve cylinders, built-in governor, seven main bearings, filtered pressure oiling, down draft carburetion, improved manifolding, overhead valves. *Waukesha Motor Company, Waukesha, Wisconsin.*



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Jefferson	1	2
Lafayette	0	2
Lafourche	2	0
Point Coupee	4	0
Pinquemines	1	0
St. Benard	1	0
St. Landry	0	1
St. Tammany	1	0
St. Martin	5	0
Terrebonne	5	‡4
Vermillion	2	0
West Baton Rouge	1	1

*Based on recent report. Number of crews varies from time to time.

†One magnetometer and one pendulum crew.

‡One pendulum crew.

Inventors' Congress

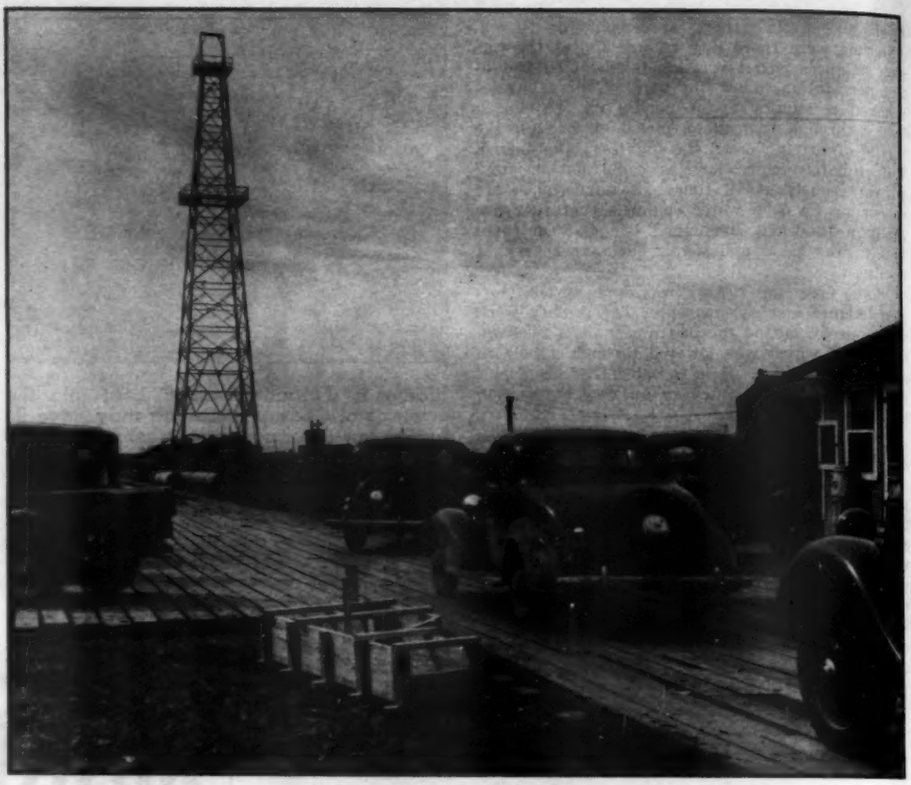
The inventors' congress exhibits at the ninth International Petroleum Exposition in Tulsa May 16 to 23 loom to be one of the most attractive features, according to B. W. Logue, of the Texas Co., chairman of the congress.

Inventors who desire space are requested to submit to the technical committee a full description of their device, a blueprint and photograph if possible, and the size it will take for exhibition. Address correspondence to B. W. Logue, International Petroleum Exposition, Tulsa.

"There are probably a great many patents, inventions and ideas not yet manufactured which should interest the oil industry. Some of these may, in time, revolutionize the entire petroleum industry and the exposition is organizing this exhibit in the hope that oil men may discover any gadgets of possible merit," said Mr. Logue.

Storage Treating

FORT WORTH, Tex., Apr. 14.—Sinclair Refining Co. is rigging up six boilers on the storage lease of the Sinclair Prairie Oil Co. near Ranger, in Eastland County, for treatment of 150,000 bbls. of basic sediment and water accumulated over a period of about 10 years. It is believed approximately 70 per cent of pipe line crude oil can be obtained from the waste fluid by a circulating system of pipes through the sediment, and treatment with chemicals. Other companies have been using the method in the area on a large scale.



Humble Oil & Refining Co. No. 1 Langham, discovery well of the Amelia field, west of Beaumont. Picture taken as rig was being torn down

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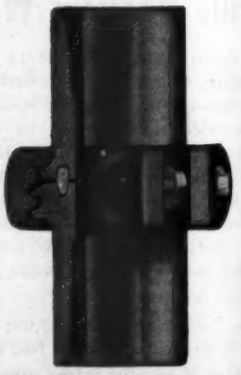

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Possibilities of Shoreline or Shoestring Fields on Texas-Louisiana Gulf Coast

By JOHN F. WEINZIERL
Consulting geologist and geophysicist, Lauratal, Riverside, Tex.

Neither venturing into the highly controversial question as to the origin of the salt known to exist in the salt domes of the Texas-Louisiana Gulf Coast nor the depth from which this salt began its upward movements, the writer, nevertheless, wishes to bring forth his more recent conception of the processes instrumental in the formation of the different salt dome types known today and the influence their original formative movements may have had on the formation of shoreline conditions and the deposition of sands capable of being reservoirs of oil.

Prior to the discovery of the Sugarland salt dome, Fort Bend County, Texas, salt dome salt on the Gulf Coast was only known to exist in the Spindletop, Sour Lake, Batson and Blue Ridge types of shallow salt domes. Vague ideas were voiced as to deeper salt domes, but no one ventured forth in deep drilling to test out these ideas.

The period of exploration from Spindletop discovery to that of Sugarland in 1927-1928 will then best be called the shallow dome period in the geologic history of the Texas-Louisiana Gulf Coast.

Geophysical methods of exploration were the immediate agencies causing the changing of the geologic conceptions of salt domes. True deep fields such as Goose Creek, Orange, in Texas, and Evangeline (Jennings) and Edgerly, in Louisiana, were known, but their interpretation as salt domes in great depths was seldom ventured by orthodox geologists.

Time need not be taken to review the unprecedented history of geophysical discoveries on the Texas-Louisiana Gulf Coast. Geophysical methods brought about the uncovering of further shallow domes; the moderately deep domes; and, finally the present generally conceded deep seated salt domes of the Van Vleck, Dickinson and Conroe types in Texas, of recent discovery as oil fields and Goose Creek and Orange types in Texas, of early history as oil fields, and Evangeline (Jennings) and Edgerly types in Louisiana, of early history as oil fields, and Iowa, Bosco, Sweet Lake types, of recent discovery as fields in Louisiana.

This development of types has brought the practical geologist to the realization that all of the above types rose from great depths, having penetrated overlying beds, pierced or punctured them, and due to some unknown reason came to rest in their present positions of different depths from the surface. Hence all domes are of the piercement type and only differ in the depth they chose in their position in the earth at which they stopped in their upward movements.

The writer has chosen Figures 1 to 8 to bring forth his ideas of salt movements in the greater subsurface.

Figure 1 shows the salt beds before tectonic disturbances. The salt beds were overlain by formation group "a" made up of much denser formations as yet unknown to man because of his incapable drilling machinery not having been able to reach them. Above the group "a" was laid the group "b," made up of those formations now known to man and those he may some day encounter in unheard-of depths.

The writer has chosen to indicate A-A'-A" as a line of weakness caused by the later readjustment of an older line of weakness below in the underlying tectonic conditions.

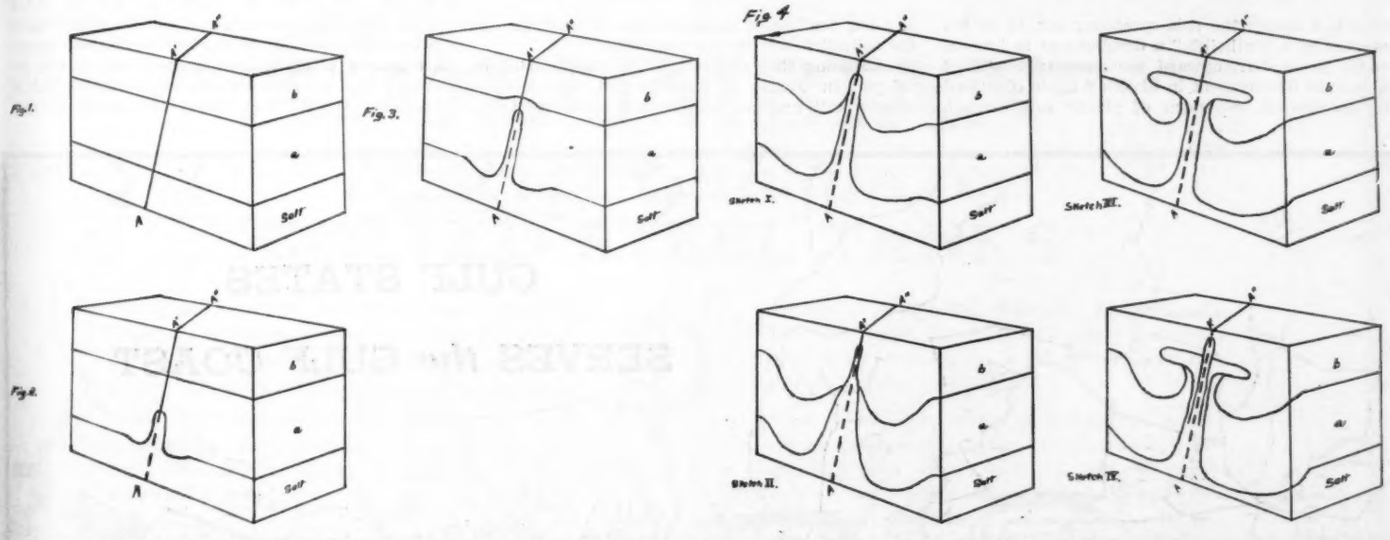
Thus having set up the first stage in the formation of our theoretical salt dome we may proceed to Figure 2. Having stated above that to date man has only partially explored the formations of group "b," the possible sedimentary history of the upper part of this group "b" will be all that will concern us in this discussion. In Figure 2 the salt will be started in its upward movement in the formation of some type of salt dome. It must be assumed from what is known to man in his experimental laboratories and what he has been able to observe in greatly deformed rocks exposed in great zones of deformation in the earth's crust, that the salt we are dealing with in Figures 1 and 2 was not of the nature known to us in salt domes of today. We will say it was in a very plastic state or better a state of flowage, rock flowage, or whatever form it may have had in those tremendous depths. Enough it is to have reasons to believe that the salt moved as putty or plastic material. With this in mind we will picture the salt of this state moving upward to a point where it becomes solid as we know it in salt dome salt mines. We will not bring in the arguments whether the salt moved in more from one side or the other of the line of weakness A-A'-A" at the point A. We will say it came in from both or all sides and concern ourselves more with the further development of the piercement dome in its upward movements.

In Figure 3 long periods of time have rapidly been gone over and the piercement dome has begun to disturb the formation group "b."

Up to this stage of development it is reasonable to assume that it was easier for the salt in its plastic state to pierce its way through the formations of group "a" along the line of weakness A-A'-A" than to lift its overburden.

The question arises as to the reaction of the less dense, less compacted, less compressed formation group "b" to this disturbance from great depths.

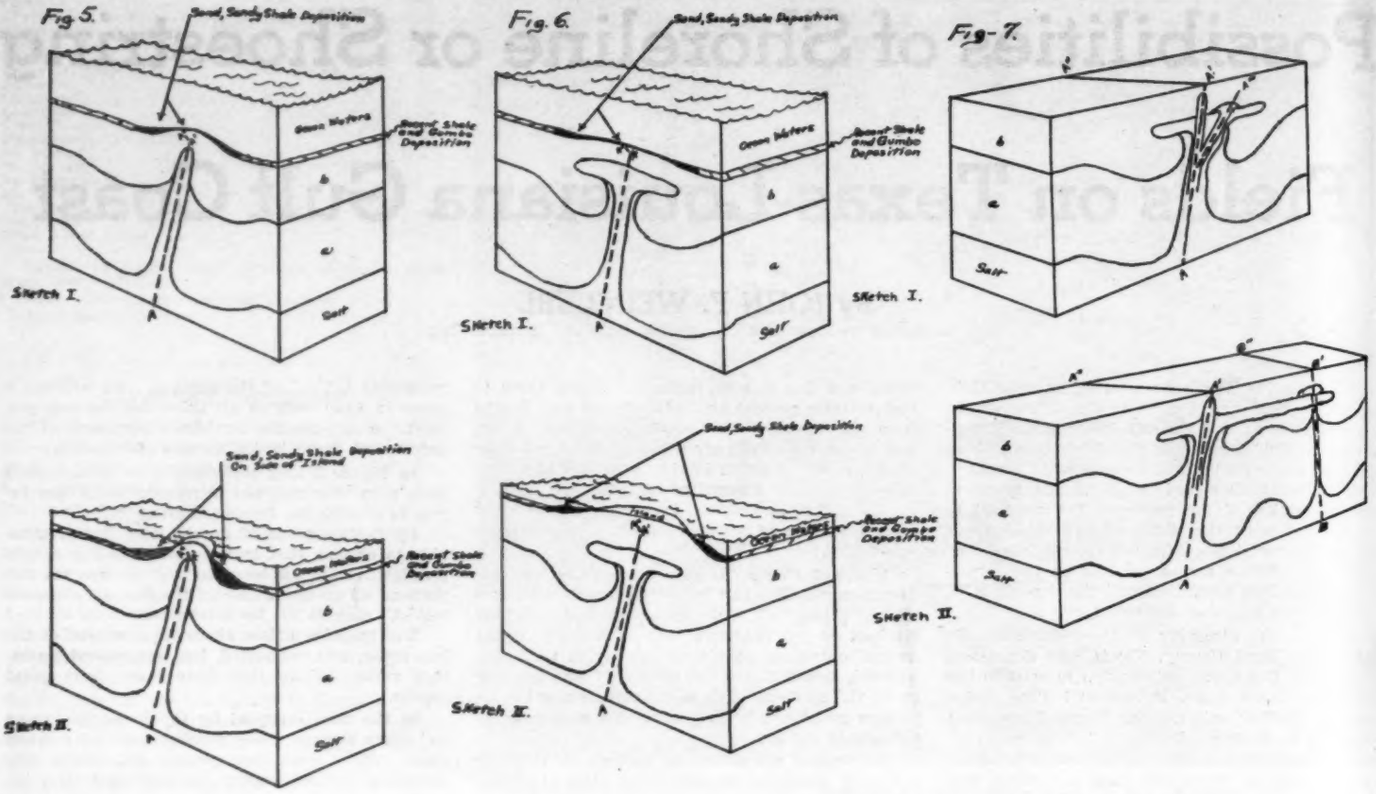
In the zone occupied by the formation group "b" many strange dome developments have taken place. These were first pointed out to the geophysicists by the gravity methods and later by the seismic methods. In their puzzling over these pictures they brought their problems to the Gulf Coast geologists for explanations and in most cases were disappointed by the vague knowledge in hand as to the deeper tectonic conditions. In fact, this same lack of knowledge is still at hand at the present day.



It can be said that the geophysicist is dealing with matters many years ahead of the time the geologist will have an explanation for same. From present drilling improvements it can be said that it will take the geologist 50 years to finally catch up with the problems of the present-day geophysicist and give an answer from well log information. The Gulf Coast geologist, ever dependent on deep wells, is still thousands of feet away from the formations at the base of the formation group "b" and has very little conception of what the formation group "a" contains, Figures 1 to 8.

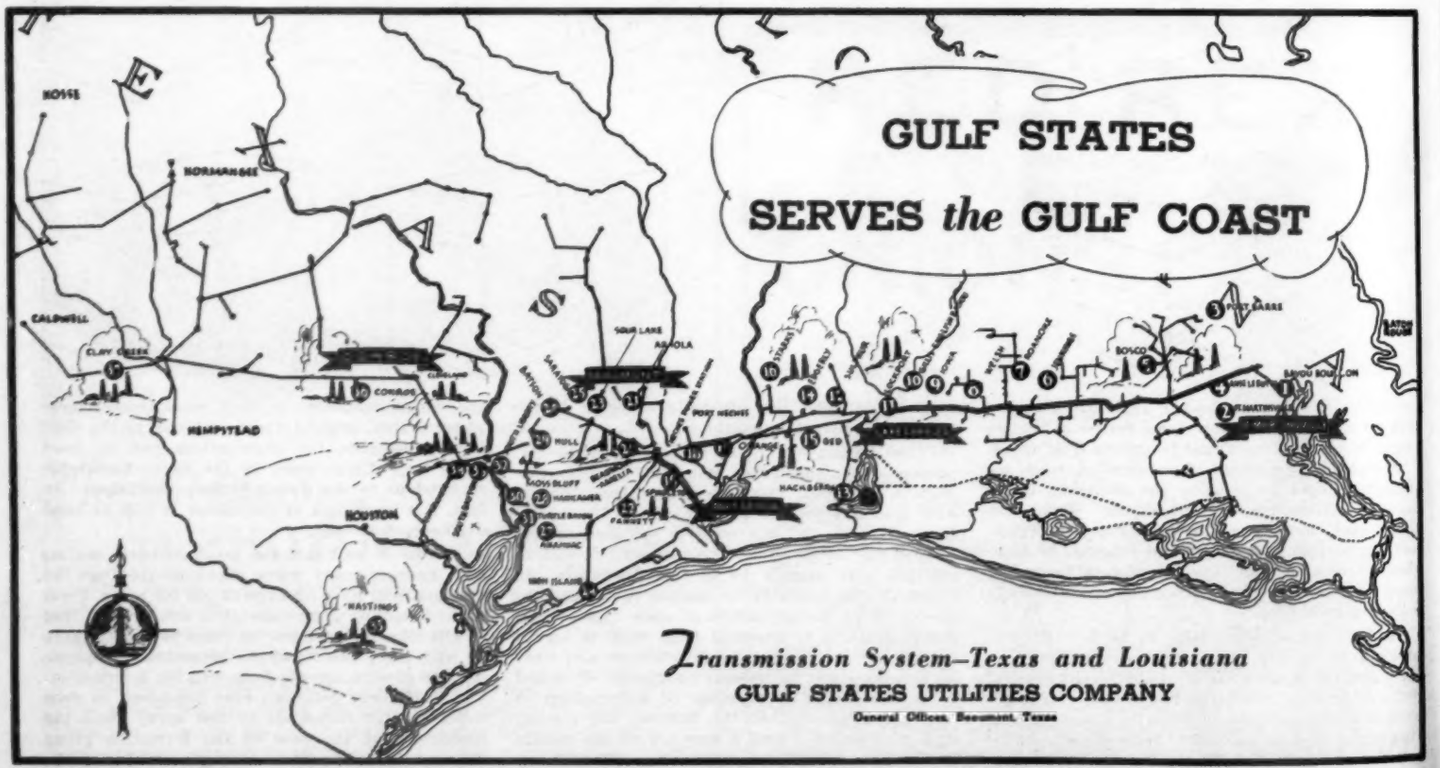
Coming back to our upward moving dome, passing over vast spaces of time, we come to Figure 4, in which several possibilities are shown as to the forms that can be taken by moving salt. These possibilities are as follows:

Figure 4—Sketch 1 shows the salt piercing its way far into the formation group "b"; Sketch 2 shows the original stock of the piercement dome dwindling to a smaller dome near the surface;



Sketch 3 shows the salt spreading out as in the manner of a "batholith," a development in igneous rocks in similar upward movements; Sketch 4 shows the development in Sketch 3 again disturbed by an upward movement of plastic salt through or along the line of weakness A-A'-A" and through the solidified salt in the "batholith."

Assuming that the salt in the "batholith" developed in Figure 4, Sketches 3-4, has lost its plastic state and has become as it is known today in the salt dome mines, assuming this solidification in the upper part of the upward moving salt caused a cessation of immediate upward movements, assuming that another disturbance along the line of weakness A-A'-A" took place opening up an ave-



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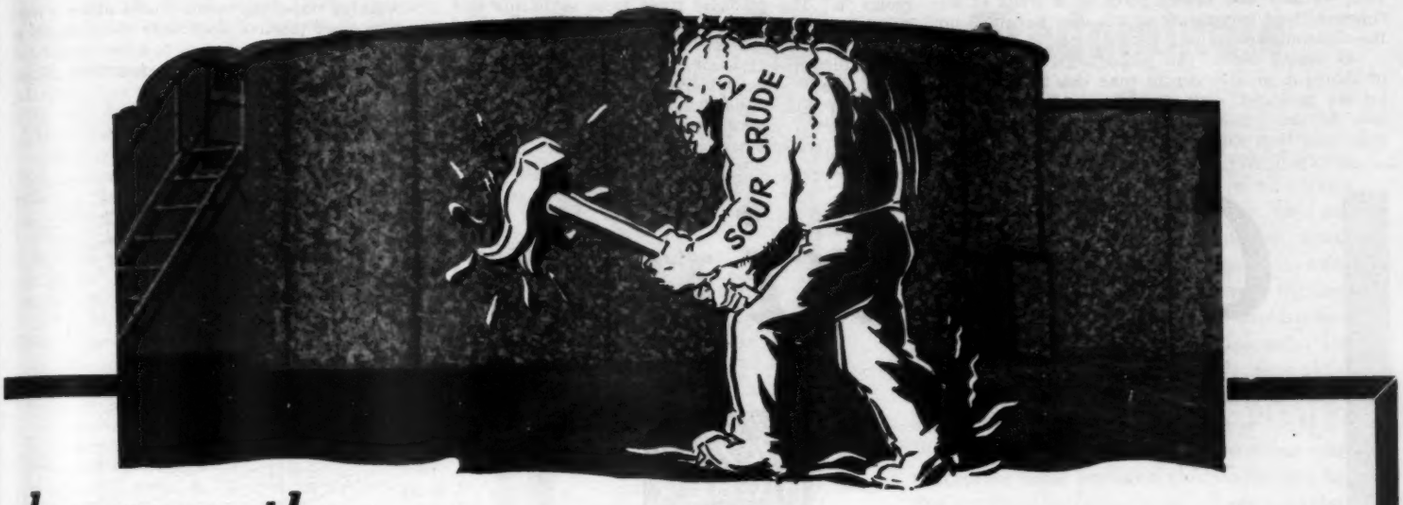

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nue through the solidified salt of the "batholith," then we would have another upward movement of salt in the plastic state and it in turn becoming solidified. The point in the upward movement of salt at which it changes from the plastic to the form known in salt dome salt mines is not known. For the sake of developing the picture of this upward movement, the writer has chosen the manner indicated in Sketches 3 and 4 assuming that at the point indicated the transition from plastic to solidified salt took place.

Letting the above suffice for the movements of the salt in its piercement movements near the surface, we may now launch forth on a study of influences these movements of salt may have had on the accumulation of oil.

As stated before the geophysicist is thinking of things in greater depths than can be explained by the geologist with the information furnished him by the present well depths of the Texas-Louisiana Gulf Coast.

In further discussion the writer will only deal with the uppermost part of the formation group "b," Figures 1 to 8, now known to the geologist from well information.

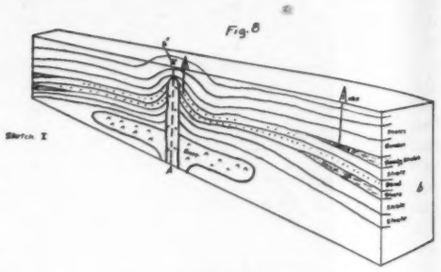
Formation Groups

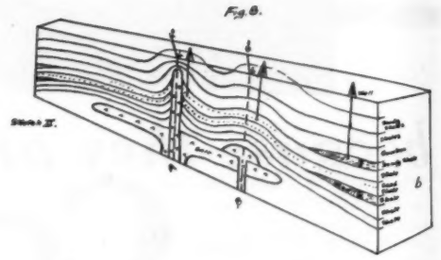
We are not concerned in what happened to make the formation group "a," Figures 1 to 8. We are, however, much concerned in what happened in the formation of the formation group "b," Figures 1 to 8. The geologist tries to reconstruct the old land masses from whence the materials were derived to make up the sediments in formation group "b." The geologist finds these sediments to be made up of gravels, sands, shales, gumbos, marls and limes. The geologist explains them as indicative of different types of deposition indicating different localities and different detphs of the waters in the depositional basins.

Geologists regard gravels, sands and sandy shales as indications of near shore deposition. The widespread sands known to exist over great areas are explained as due to the moving about of the shorelines in the sedimentary basin.

The above sedimentation over vast areas would be without interruption and would apply itself to the shape of the basin and would only take that form save for the rims of such basin, were it not for the structural disturbances within the basin having their origin in old lines of weakness in the older tectonic conditions below. Another source of disturbances could come from differential settling in the formation group "a" and formation group "b," Figures 1 to 8.

Confining ourselves to the domes and not dealing with other possible structural developments in the sedimentary basins known to have existed during the time of the sedimentary formation of formation group "b," Figures 1 to 8, we come to the possibilities that domes may have caused islands or more shallow portions in the depositional basins and thereby have disturbed the general deposition of more or less uniform formations.





Dividing the formation group "b" of Figure 1 into different stages, we may develop the following conditions. Figure 5 shows the influence a piercement type dome may have had on more recent formations, as follows:

Figure 5—Sketch 1, showing how a piercement type dome that did not rise above the water could have caused a great disturbance in sedimentation in the basin; Sketch 2, showing the piercement type dome making an island and thus causing a greater disturbance in sedimentation in the basin.

That the above occurred on several shallow domes is quite generally known.

We will now take up the conditions which could have been brought about by a "batholith" type dome as in Figure 4, Sketch 3. For the sake of putting the above into measurable dimensions it will be assumed the "batholith" is 20 to 30 miles long on its longer axis and 10 miles in width. To what extent such an intrusion would disturb its overburden is a matter of speculation, but it would be widespread.

Assuming a "batholith" type salt dome near the surface was made of salt more or less in the same state as in the present salt dome mines, assuming such a "batholith" type salt dome formed under a sedimentary basin, then a condition as shown in Figure 6, Sketch 1, could arise.

In Figure 6, Sketch 2, is shown a condition which could arise if the overburden over the "batholith" rose above the waters of the sedimentary basin. If this condition prevailed and the sedimentary basin subsided, then this area would be subjected to a further depositional cover.

Referring to Figure 4, Sketch 4, we have a piercement dome having worked its way from the plastic zone up a recurring break on the line of weakness A-A'-A", through the "batholith" of solidified salt and further towards the surface.

Figure 7, Sketch 1, shows a similar "batholith" on which another type of movement took place. One break allowed a piercement dome to rise as in Figure 4, Sketch 4, and another a minor local

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uplift of the overburden on the "batholith." This might be caused by a subsequent parallel line of weakness not chosen by the first upward movement of the salt. The line of weakness A-A'-A" might give no avenue for the second salt movement and a condition as in Figure 7, Sketch 2, might arise.

Casting about in the geophysical pictures offered years ago by the gravity methods and later by the seismic methods, we find such pictures as the Greater Fresno-Manvel gravity picture in Brazoria County, Texas, and the Greater Cedar Bayou, Barbers Hill, Lost Lake, Hankamer, Moss Bluff picture in Harris, Chambers and Liberty Counties, which may be explained by Figure 7, Sketches 1 and 2.

That which concerns the oil man most in all this study is in what way the different movements of the salt domes influenced the accumulation of oil about them.

Referring to Figure 6, Sketches 1 and 2 and assuming that these "batholith" types of development are beneath certain dome groups of the Texas-Louisiana Gulf Coast, and further assuming that these "batholiths" exist in not all too great a depth, then the flanks of these "batholiths" offer possibilities of shoreline or shoestring fields. Further developing Figure 6, Sketches 1 and 2 and Figure 7, Sketches 1 and 2, we can picture a condition as in Figure 8, Sketches 1 and 2.

In conclusion the Texas-Louisiana Gulf Coast with its multiplicity of oil sands, its great petroliferous provinces, its many possibilities offered by the present known domes, its possibilites offered by the suggestions in Figure 8, Sketches 1 and 2, and its possibilities that may still lie in the faults and anticlinal folds in its area, is indeed one of the richest oil territories on earth.

The oil reserves of the Texas-Louisiana Gulf Coast have been but slightly exploited.

60,000 Texas Wells

AUSTIN, Tex., Apr. 14.—More than 60,000 oil wells were producing in Texas at the beginning of March, according to the report of the Railroad Commission. Of this number 23,583 were flowing wells and 36,484 pumping or made to produce by means of agitation. The East Texas field led with 17,774 flowing wells and 2,122 pumping wells, on 241,977 acres, divided into 3,651 leased tracts. The number of operators in the field is 1,152. The proved producing areas of the state total 2,088,980 acres.

In the West Texas district the proved oil producing areas total 518,353 acres with 386 operators and 812 leases containing 1,620 flowing and 1,870 pumping wells. North Texas, with 206,439 acres, 767 operators and 2,391 leases, had 143 flowing and 14,896 pumping wells.

The Gulf Coast district ranked next to East Texas in flowing wells, with 1,865 flowing and 2,072 pumping wells in 183,736 acres, with 380 operators and 1,183 leases.

There were 4,108 reported and 105 unreported operators on 12,041 reported and 127 unreported leases in Texas' 2,088,980 oil producing areas, from which 32,030,971 bbls. of oil were reported to have been withdrawn in January.

Pipe lines took 31,699,718 bbls., tankcars 86,344, trucks 104,348, fuel 27,567, and miscellaneous 25,230.

Oldest Texas Lease

A mineral lease, dated September 16, 1886, believed to be the first oil lease executed in Texas, is in possession of R. R. Lambert of Nacogdoches. It was issued by Lambert's uncle, Dr. E. M. Smith, covering "two certain tracts of land aggregating 231 acres." The instrument is signed by H. J. Lutcher and J. A. Bentley, president and secretary, respectively, of the Pennsylvania Oil Co.

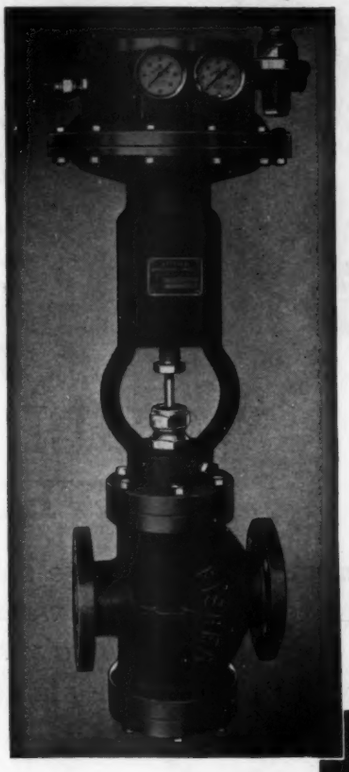
Nacogdoches was the first area in Texas where oil was developed. Crude was discovered and developed there about 1867 by Armory Starr and Payton E. Edwards. Wells were drilled to 185-225 feet, producing 2 to 6 bbls. daily.

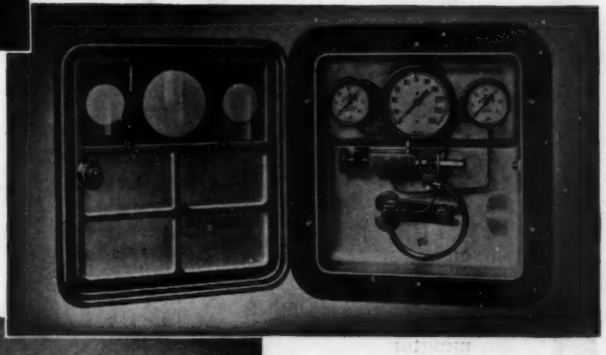
The lease embraced two blocks, one of 73 acres, the other of 158 acres, lying near the town of Chireno.

FISHER

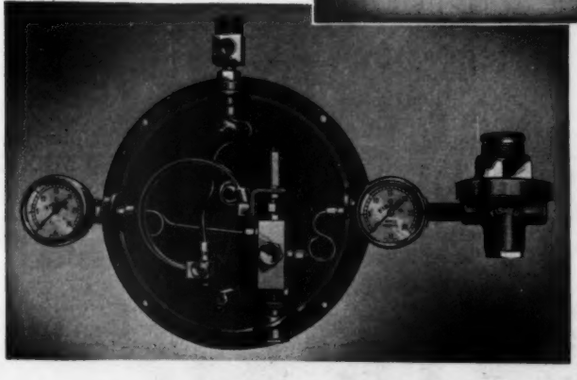
WIZARD
Pressure Controls Predominate

The FISHER WIZARD Pilot Regulators for pressure reducing and pressure relief service predominates in many fields today. This exclusive design patented construction, which was introduced a few years ago, has been pronounced by engineers as the most friction-free, economical, and simple in construction of all pressure regulation equipment. The unit utilizes the most modern adaption of the Bourdon Tube principal as a pilot valve. Since the introduction of the FISHER WIZARD Control, at least three other manufacturers have imitated this controller, but the outstanding features, which are patented, are still exclusive on the FISHER Control. The FISHER WIZARD Pilot Valve is the only one which is entirely friction-free, having no springs, stuffing box, or bearing points, thus enabling extremely close regulation and full-throttling control.





The WIZARD Control is available in three principal designs; one with the pilot valve mounted as an integral part of the main diaphragm topwork assembly, as shown above. This unit is known as the Series 4200G. Also available with the pilot mounted in the square mounting panel unit, gas-tight case. Type 4000H, as shown at the right; or with the round wall mounting type of case, Type 4000G, as shown below.



The FISHER WIZARD Pilot Valve is suitable for pressure ranges from 3 pounds to 500 pounds and can be furnished for higher pressures on application. This unit requires an operating medium of compressed air or gas not lower than 25 pounds or not over 250 pounds. Furnished complete with auxiliary regulator.

For complete information on the WIZARD Pilot and Pressure Regulator Series, write for the new FISHER, Bulletin No. 5-B.

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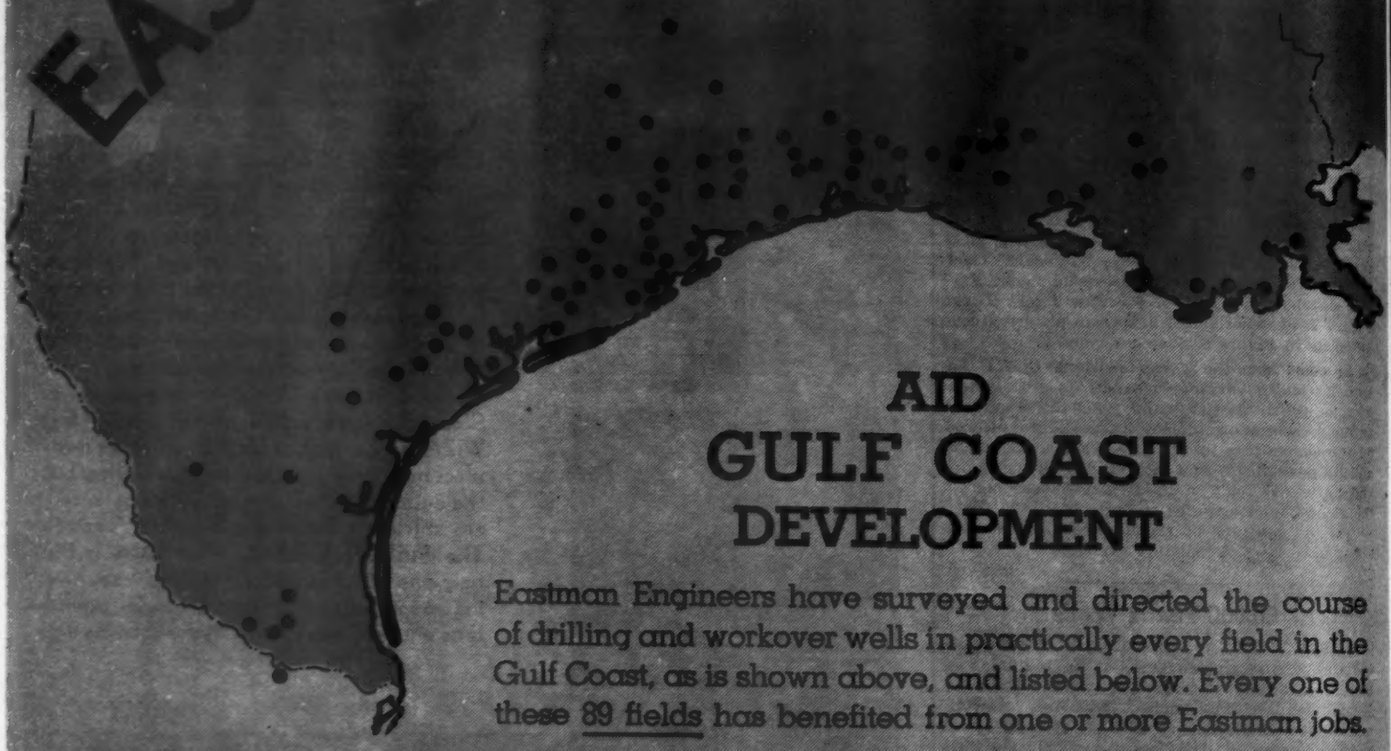

AID GULF COAST DEVELOPMENT

Eastman Engineers have surveyed and directed the course of drilling and workover wells in practically every field in the Gulf Coast, as is shown above, and listed below. Every one of these 89 fields has benefited from one or more Eastman jobs.

TEXAS—
Allen Dome
Anahuac
Ariola
Bay City
Barbers Hill
Batson
Beeville
Big Creek
Big Hill
Bloomington
Blue Ridge
Boling
Brazoria
Bruni
Buckeye
Citrus Grove
Cleveland
Conroe
Dacus
Danbury
Dickinson
Edinburg
Freeport
Galveston
Greta
Hastings
Hankamer
High Island
Hoskins Mound
Hull
Humble
Liberty
Livingston
Louise
Manvel
McAllen
Markham
McFaddin
Mission
Mykawa
Orchard
Pettus
Pierce Estate
Pierce Junction
Placedo
Pledger
Port Lavaca
Port Neches
Premont
Rattlesnake Mound
Sam Fordyce
Seadrift
Silsbee
Sinton
Sour Lake
South Houston
Spindle Top
Stratton Ridge
Tomball
Trinity
West Columbia

OLD MEXICO
Reynosa

LOUISIANA
Bayou Bouillion
Bayou Mallet
Black Bayou
Bosco
Caillou Island
Cameron Meadows
Cheneyville
Darrow
Four Isle
Gueydan
Hackberry
Iowa
Jefferson Island Dome
Lake Barre
Lake Hermitage
Lake Washington
Leeville
Lockport
New Iberia
Roanoke
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Stark Dome
Sulphur
Tepetate
Vinton
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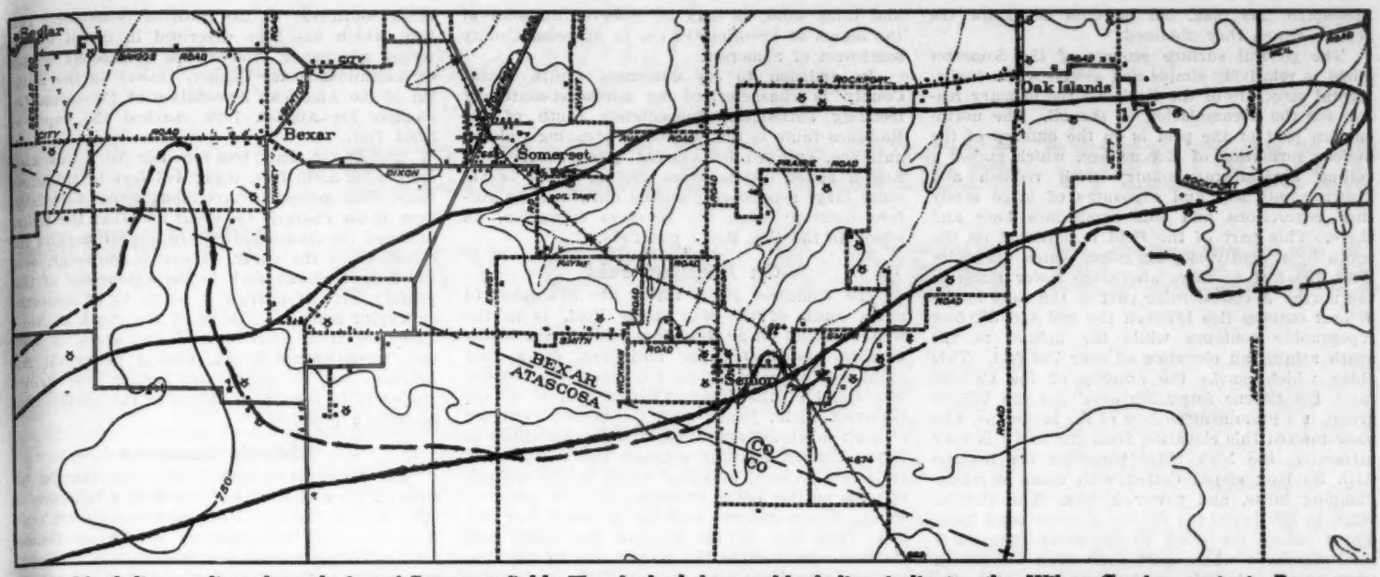
OKLAHOMA CITY



Heavy black line outlines boundaries of Somerset field. The dashed heavy black line indicates the Wilcox-Carrizo contact. Base map is the topographic and road sheet of Poteet Quadrangle, Bexar and Atascosa Counties, by the United States Army Engineer Corps. The original scale of this topographic sheet is approximately 1 inch to the mile. The Somerset field is 14 miles long

Interesting Features in Somerset Field

One of Country's Big Shallow Pools

By RICHARD A. JONES
Geologist

One of the largest shallow fields in the United States, both in extent of acreage and amount of production, is little known, except locally in the region where it occurs. This is the Somerset Field, in Bexar and Atascosa Counties, Texas, about 20 miles southwest of San Antonio. There are many interesting features about the Somerset Pool which make an account of it well worth while.

The discovery well of the Somerset Field was drilled over 20 years ago. In 1911 or 1913 C. Kurz while drilling for artesian water on his farm 2 miles east of the town of Somerset in Bexar County found oil at about 900 feet and completed the well as a commercial producer.

Following the discovery of oil near Somerset by Mr. Kurz, drilling for some reason was slow. During the period of several years until 1919 only about 50 oil wells were completed.

Drilling Record

The first wells were small, but later larger wells were brought in and a period of rapid drilling started after 1919, reaching a climax about 1921 or 1922. Thereafter, drilling gradually lessened; and the field has for some years been quiet, save for the regular pumping of wells and occasional tests drilled to increase the production of leases or in an effort to expand the field.

The total of wells drilled in the Somerset Field is surprising, running into hundreds of shallow wells. The extent of the field is also surprising. On an accompanying map are shown the boundaries of the Somerset Field, as mapped by automobile speedometer by the author on the U. S. Army Engineering Corps road and topographic sheet of the area. The field, which trends in a northeast-southwest direction, is about 14 miles long, and 2 miles in width in its widest part. The pool lies partly in Bexar County and partly in Atascosa County. It extends from a point not far south of Medina River, about 7 miles northeast of Somerset, to the Atascosa River in Atascosa County, south of Lytle. The extreme northeastern end of the Somerset Field was formerly known as the South Medina Pool, but it is essentially a part of the Somerset Field.

The oil at Somerset is of good grade, much of it being from 30 to 35 degrees gravity, some lower, some higher. The total recovery of oil to 1934 was over 9,000,000 bbls., the exact figures being 9,250,541 bbls. At present writing the field is said to be producing about 800 bbls. per day.

Without doubt the Somerset Field, by reason of its great extent, trending across the country for mile after mile, the high gravity of the crude, and the large number of wells drilled, is one of the most remarkable shallow fields ever found.

The oil is found at various depths, the producing horizon dipping to the southeast. The oil in the original Kurz discovery well, in the northern part of the field, was at a depth of about 900 feet; and production is generally found at 850 to 900 feet on the northern side of the pool. South of Somerset the wells are deeper, the depth of wells in the central part of the field being around 1,250 feet, becoming deeper down dip to the southeast. On account of the varying depths at which production is found, owing to the dip of the formation, it is difficult to give a figure for the average depth of the productive strata. Some wells are very shallow; but others are fairly deep, since it is reported wells drilled as deep as 2,100 or 2,200 feet have found production.

The marked southerly dip of the producing horizons is shown by various wells drilled to the Austin chalk. East of Somerset the chalk is found at a depth of about 900 feet below sea level. In a well 5 miles south-southwest of Somerset, Grayburg Oil Co.'s No. 17 Hartung, Survey 385, Atascosa County, the chalk was not reached until 2,290 feet, or 1,640 feet below sea level. This gives a dip of 740 feet in about 5 miles, or approximately 150 feet to the mile. Surface exposures in various parts of the Somerset Field check this rate of dip, as good outcrops occur with a southerly dip of 1 to 2 degrees.

The petroleum comes from the Navarro and Taylor formations of the upper Cretaceous. It is sometimes stored in sand lenses in the shales and marls. In other places it seems to be produced from the shale itself, for the oil of some wells immediately east of Somerset is said to be obtained directly from hard fractured shale.

Subsurface Geology

The detailed subsurface geology of the Somerset Field is very difficult to work out. The oil does not occur in a continuous stratum that can be definitely traced from well to well; but in a zone of shale and irregular sand lenses, sometimes being in the shale, sometimes in sand. This makes it difficult to say that the producing horizon in one well and that in another well a mile away are exactly the same horizons. It might be the producing horizon in the one well was 50 feet in the geologic section above or below the oil pay in the other well, both being, none the less, in the same petroliferous zone. Such a situation would render it impossible to draw correct subsurface contours depicting the structure.

The entire oil-bearing zone dips in a southerly direction and is affected in places by both folding and faulting, so the accurate working out of the detailed structure of the shallow production is indeed a complicated matter. The situation is rendered worse by the logs which record only a bewildering succession of shale and gumbo with occasional streaks of sand. Very few companies or geologists have ever endeavored to decipher the detailed structure of the shallow Somerset production, as it is an immense undertaking, involving the collection of hundreds of well records and logs and the running of elevations on all the well locations. About 10 years ago the writer believes Mariand Oil Co. and Gulf Production Co.

attempted this task, but he does not know the results which they obtained.

The general surface geology of the Somerset Field is relatively simple and discloses the fundamental structure of the field and the primary reason for the accumulation of the oil. The northeastern part of the pool is on the outcrop of the Wilcox formation of Eocene age, which makes a rolling agricultural country with reddish and brown sandy soil and exposures of large sandy lime concretions and soft sandstones here and there. This part of the field is bordered on the south by a gently sloping ridge, which gradually rises 150 feet or more above the lower lands to the north. A considerable part of the field in the Wilcox outcrop lies between the 600 and 550-foot topographic contours while the upland to the south attains an elevation of over 700 feet. This ridge which marks the outcrop of the Carrizo sand, the Eocene formation overlying the Wilcox group, is a prominent feature of the landscape. The view toward this elevation from the north is very attractive, the high ridge bounding the horizon with its long slopes dotted with small derricks, pumping jacks, and power houses. The Carrizo ridge is the beginning of the Carrizo sand hills, which extend for miles to the south, forming a semiwilderness where post oaks grow thickly in white sand and little of the land is suitable for cultivation.

Great Shallow Basin

The contact of the Wilcox and Carrizo formations is shown on the accompanying map. It will be noted that the northeastern part of the field lies in a great shallow basin or bulge of the Wilcox into the Carrizo sand hills. The basin is outlined by a long finger of Carrizo which swings far to the north in the area west of Somerset. This salient of the Carrizo hills reaches a height of over 750 feet.

The relations of the Wilcox and Carrizo formations mentioned suggest a large anticlinal nose plunging to the southwest. The Wilcox basin may have been accentuated by the erosion of various tributaries of Elm Creek, but it is the writer's opinion the trend of the Wilcox-Carrizo contact in the Somerset district has largely been caused by the regional structure.

As the geology as a whole suggests a broad, gentle anticlinal nose, plunging to the southwest, so also does the distribution of the producing wells of the Somerset Field. A short distance below the Bexar-Atascosa county line the field leaves the Wilcox outcrop and crosses over into the outcrop of the Carrizo, in which it continues for a number of miles. This southwestern part of the pool is in the typical Carrizo country of oak trees and thick sand, as may be observed on some of the leases of Frontier Oil Co. in Atascosa County southwest of Somerset.

In addition to its numerous faults, Bexar County is characterized by northeast-southwest trending anticlines. Immediately south of the Balcones fault is the southwest plunging Culebra anticline, outlined by a great nose or salient of Austin chalk. Some miles further south is another large southwest plunging anticline, the surface outcrop being the Navarro formation, on which is the Gas Ridge gas field.

On Anticlinal Fold

The Somerset Field, which lies a number of miles south of the Gas Ridge Pool, is in the writer's belief on an anticlinal fold similar to the Culebra and Gas Ridge anticlines, on a fold parallel to these anticlines but much less distinct. The trend of the Wilcox-Carrizo contact at the Somerset Field, joined with the known existence of such northeast-southwest trending anticlines in Bexar County, strongly suggests this is the case. It is this regional anticline which in the writer's opinion is the basic structure of the Somerset Field. The anticlinal evidence is much less distinct than that of the parallel Gas Ridge and Culebra anticlines to the north; and in the subsurface may have been so modified by faulting that subsurface data may not outline definite anticlinal structure. It is also possible the structure is a very generalized anticlinal nose without definite reverse or northwest dip, but presenting only southerly dips, southeast, south, and southwest.

Sometimes in the search for oil the geology must be worked out in the greatest detail possible; but in some localities it is best to disregard details and place reliance upon regional features of the geology, features extending over many miles of the country. Whether or not the existence of an anticline such as that discussed can be proven in the Somerset area, it is true the field could have been discovered simply by tracing out the Wilcox-Carrizo contact, paying no attention to other matters. If, years ago, test wells had been drilled in the Wilcox basin south of Somerset on the theory such an anticline existed oil would have been found.

The producing zones of the Somerset Field in the Navarro and Taylor shales and marls are underlain by the regular succession of Cretaceous formations, Pecan Gap, the Austin chalk and the Eagleford shale of the upper Cretaceous; and the Buda limestone, Del Rio clay, Edwards limestone, Glenrose limes and marls, and Trinity sands of the lower Cretaceous or Comanche.

The deepest hole ever drilled at Somerset is Milham Corp. of Texas' No. 1 Eastwood, about 1½ miles southwest of the town of Somerset. This test, which has been described in detail by the writer in a paper, "Subsurface Cretaceous Section of Southwest Bexar County, Texas," in the Bulletin of the American Association of Petroleum Geologists for August, 1926, reached the depth of 5,361 feet.

The Austin chalk was found in No. 1 Eastwood from 1,567-2,010 feet, being 443 feet in thickness. Some other geologists have thought that this thickness of the chalk is too great and that the writer included the Anacacho lime in his estimate of the thickness of the chalk. There is, however, over 400 feet of chalky rock in the subsurface of this vicinity, even if part of it really be of Anacacho or Taylor marl age. Cores of the chalk in No. 1 Eastwood from 1,647-54 feet, and again at 1,690 feet, were stained brown with a heavy oil saturation; but an offset well which was drilled purposely to test these shows in the chalk failed to make a producer.

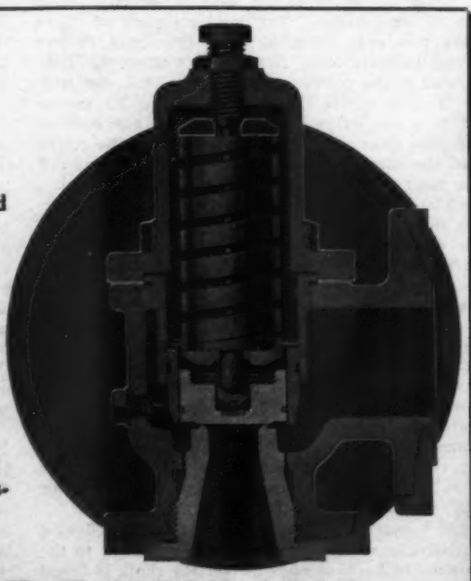
Edwards Limestone

The Edwards limestone was encountered between 2,278 and 3,002 feet, showing a thickness of 724 feet. At the top of the Edwards the bit penetrated a huge subterranean cavern or fissure. Drilling returns were lost and it was necessary to pour tons of mud, cotton seed, and other packing into this cavity. Neither oil nor sulphur water was found in the Edwards in No. 1 Eastwood.

The Glenrose limestone occupied the interval between 3,097 and 4,882 feet, having a thickness of 1,785 feet. The formation for the most part consisted of yellow and blue limes, some hard, some soft; but various cores of black, bituminous limestone, carrying a small amount of petroleum, were taken between 4,046 and 4,131 feet. These black limes closely resembled the Marble Falls limestone of the Pennsylvanian and were even thought to be such, until the hole was carried down into the Trinity sands, proving they belonged to the Glenrose formation. The only commercial production so far found in the Glenrose in Southwest Texas is that of the 5,600-foot gas wells of the Chittim Pool, in Maverick County, near Eagle Pass. However, the black petroliferous lime section of the Glenrose encountered in Milham Corporation's No. 1 Eastwood may, under proper conditions of structure and porosity, serve as a reservoir of oil in commercial quantities.

Beneath the Glenrose the Trinity sands were penetrated by No. 1 Eastwood to the bottom of the hole. The well stopped in Trinity conglomerate but it may have been almost through this basal Cretaceous formation, as 479 feet of Trinity was drilled, from 4,882-5,361 feet. No oil was found in the Trinity in the Eastwood well, nor was any water present, a rather surprising thing.

NO LEAKS to give you grief and run up maintenance costs when your relief valves are Crosby. Nozzle and disc are the only parts under pressure. Nozzle is loosely held in the body—and both nozzle and disc are symmetrical so as to expand and contract alike. No distortion or galling to start seat-cutting. No threads to leak. For relief from relief valve troubles, install Crosby.



CROSBY STEAM GAGE AND VALVE CO.

BOSTON, NEW YORK, CHICAGO, LOS ANGELES

Canadian Western Natural to Report on Operations

CALGARY, Ontario, Apr. 14.—The annual report of the Canadian Western Natural Gas, Light, Heat & Power Co. shows a gross income from sales of $2,219,726.92 compared with $1,915,626 the previous year. Operating expenses amounted to $1,499,531.86. After various deductions the net profit was $519,474 compared with $444,656. Federal, provincial and municipal taxes reached a new record of $257,592.07. The balance sheet disclosed current assets of $834,960.11 and current liabilities of $279,817.22 while fixed assets amounted to $15,322,448.29.

The report points out that 11,000,000,000 feet of gas were distributed or utilized by the company in 1935, while the huge total of 77,000,000,000 feet from Turner Valley was wasted. Turner Valley rock pressures dropped from 973 to 879 pounds, with a drop of 288.5 pounds in the new south end. "With this in mind," the report states, "your directors are conserving the company's resources so that when the time comes we will be in a position—without hardship to the company or to the public—to reach out for other sources of supply."

The report shows that repressuring of the Bow Island field with Turner Valley waste gas is still being carried on. Some 7,903,545,000 feet had been pumped into the sands up to December 31, and pressures had increased from 248 pounds in August, 1930, to 496 pounds in August, 1935.

North Louisiana, Arkansas

BIENVILLE PARISH WILDCAT MAY OPEN A NEW RODESSA

By J. R. CRUMPTON

SHREVEPORT, La., April 13.—The completion of Lide and others No. 1 Davis Brothers Lumber Co., section 12-16-5w, Bienville Parish as a huge saturated gasser has added new impetus to deep wildcatting in the Northwest Louisiana area. The wildcat completed last week was erroneously reported on its initial production and rock pressure. The well gauged 70,750,000 feet of highly saturated gas with 2,350 pounds rock pressure from total depth of 6,141 feet, 7-inch casing set on bottom and perforated from 5,863-70 feet. The pay is coming from subsea depth of 5,565 feet or around 500 feet lower into Oolitic lime than the same operators No. 1 Fowler about 7 miles northeast in Lincoln Parish. The well, surrounded by a large block of acreage, is located on a geophysical high and is owned by David M. Lide, George Greer, M. H. Marr and Herman L. Brown. Arkansas-Louisiana Gas Co., a subsidiary of Cities Service, owns the gas rights on this block and also under the original discovery well in that area. The results of the test prove up an extended structure running northeast and southwest and which has all the earmarks of developing into another Rodessa. Top of red beds was logged in the test at 4,082 feet, top of Anhydrites at 5,162 feet and base of massive Anhydrites at 5,606 feet.

Rodessa

The Rodessa field kept pace with previous weeks, reporting seven completions. Arkansas-Louisiana Gas Co. No. 11 Rodessa Oil & Land Co., section 23-23-16, flowed 54 bbls. per hour through five-eighths inch tubing choke from total depth of 6,002 feet. Seven-inch casing was perforated from 5,995-97 feet and tubing pressure registered 500 pounds. Haynes Production Co. No. 10 Lawton, section 14-23-16, gauged 157 bbls. per hour through 1¼-inch choke on tubing from 6,041 feet. Top of saturation was logged at 6,009 feet, tubing pressure registered 150 pounds and casing pressure 400 pounds. United Gas Public Service Co. reported five completions. Its No. 5 Ardis & Co., section 14-23-16, had initial production of 35 bbls. per hour, tubing pressure 750 pounds and casing pressure 500 pounds from total depth of 6,009 feet. All of the United wells were completed on one-half inch tubing choke. Number 1 Gibson unit, section 15-23-16, is a 60 bbl. per hour gusher, tubing pressure 350 pounds and casing pressure 650 pounds from 6,008 feet; No. 12 Rodessa Oil & Land Co., section 22-23-16, made 58 bbls. per hour from 6,010 feet, top of saturated lime was logged at 5,945 feet; No. 2 Thomas unit, section 23-23-16, flowed 62 bbls. per hour from total depth of 6,016 feet. An offset to the discovery well, No. 2 I. L. Young, section 21-23-16, lived up to its famous predecessor and gauged 46 bbls. per hour from 5,995 feet, top of saturation was logged at 5,955 feet. Only one other completion was reported from this district, a small gasser in the Morehouse Parish area of the Monroe field. J. E. Farrell, No. 13 State, section 4-20-4e, had an initial production of 2,000,000 feet of gas with 612 pounds rock pressure from 2,146 feet.

Estimated Production

Estimated daily gross production, all companies, week ending April 10:

NORTH LOUISIANA

	Bbls.
Bellevue	450
Caddo, light	3,945
Caddo, heavy	2,435
Converse	1,095
Cotton Valley	415
DeSoto and Red River	1,285
Elm Grove	460
Haynesville	3,420
Holly	145
Homer	2,640
Pleasant Hill	160
Rodessa	40,660
Sarepta-Carterville	510
Urania	2,645
Zwolle	1,350
Total	61,615

SOUTH ARKANSAS

Champagnolle	3,480
El Dorado	2,070
Lisbon	290
Miller County	1,070
Nevada	875
Smackover, light	2,100
Smackover, heavy	17,680
Stephens	560
Urbana	2,000
Total	30,125
Texas side Rodessa field	1,700

Deep Wildcats

A number of deep wildcats should get results one way or another during the coming week. Arkansas-Louisiana Gas Co. No. 1 C. E. Causey, section 32-19-2w, Lincoln Parish, is probably the hottest wildcat at this writing. It is a short distance northeast of the town of Ruston and has possibilities of extending this Ruston-Simmsboro area several miles to the northeast. The well logged top of massive Anhydrites at 4,154 feet and base at 4,335 feet and is coring Oolitic lime in the Glen Rose at 4,471 feet. An offset to the discovery well in the Simmsboro field, Herman L. Brown and others No. 1 S. Gardner, section 10-17-4w, is arranging to resume drilling from 4,587 feet. The rig was moved from this location to drill the Lide and others wildcat.

In the Sugar Creek area of Claiborne Parish, two deep tests are active in the field proper, and one is arranging to skid over on new hole after junking the original. The latter, E. T. Oakes No. 1 H. W. Patton estate, section 1-20-5, about 7 miles north and slightly east of production in Sugar Creek, was junked at total depth of 4,242 feet after failing to fish out bit and drill stem. Triangle Drilling Co. No. 1 Kilpatrick, section 7-19-5, is coring lime and shale at 4,840 feet. This is an old well drilling deeper from the first gas horizon at 4,458 feet. United Gas Public Service Co. No. 2 Darrett, section 31-20-5, is coring hard sand at 5,943 feet.

Webster Parish

Two deep tests, widely separated, in Webster Parish are rapidly reaching the anticipated pay horizons. In the southern part of the parish on the Dubberly structure, J. P. Evans and others No. 1 T. Crichton, section 35-18-9, logged top of anhydrites at 4,730 feet and is drilling in lime and shale at 4,930 feet. The test is on a geophysical high and a well defined surface structure. The block is east and north of an 8,000-acre block recently assembled by Standard Oil Co. of Louisiana and on which titles are being cured preparatory to drilling a deep test. All of the territory in that vicinity has been thoroughly shot by various seismograph crews, indicating a closure of around 300 feet with top of anhydrites at 4,800 feet or around 4,600 feet subsea. Ohio Oil Co. deep test in the Cotton Valley field in the northern part of the parish, No. 1 R. L. Holloway, section 23-21-10, is coring carefully for an expected sand around the 7,000-foot level. The well, which blew out with a large flow of saturated gas from 5,548 feet, is coring at 6,883 feet.

Sabine Parish, which has been in the production column of North Louisiana for many years from chalk rock horizons, is making a bid for Oolitic lime production. A. H. Tarver No. 2 Baker, section 36-8-12, blew out with no estimate on the gas flow from 5,200 feet. The drill stem is stuck 1,400 feet off bottom. It is decidedly the best show of any deep test drilled to date in the Zwolle area. In the Sligo field, Bossier Parish, United Gas Public Service Co. No. 1-A A. J. Murph, section 17-17-11, is coring lime and shale at 4,285 feet. Other shallow tests in this district follow: Bossier Parish, Bossier Oil & Gas Co. No. 3 Sherrill, section 13-19-12, a few miles west of the Bellevue shallow field, set 7-inch casing at 2,207 feet and report 4 feet of sand with total depth at 2,226 feet; George H. Bringhurst and others No. 1 Buckley, section 36-21-13, set 7-inch at 2,295 feet to test a show from total depth of 2,298 feet. Caddo Parish, Blanchard area, Pyramid Oil & Gas Co. No. 1-A S. R. Wheeler, section 16-18-16, is being watched as a possible producer from the Glen Rose horizon. The test logged top of anhydrites at 3,783 feet and is drilling in this formation at 3,970 feet.

Two wells on the northeastern flank of the Rodessa field failed to make commercial oilers on first test during the past week. Bartex Pipe Line Co. No. 2 Robinson, section 17-23-15, made 50 bbls. in three hours and stopped flowing. It is being retested from total depth of 6,057 feet. In the same section, Travis and others No. 1 Raney tested an estimated 5,000,000 feet of gas and 2 bbls. of gasoline per hour from 6,080 feet. Top of saturation was logged at 6,048 feet, tubing pressure registering 2,200 pounds and casing pressure 2,300 pounds.

Cass County

This area reported three new locations during the week. American Liberty Oil Co. has staked two locations on the D. A. Maxie lease in the John Collum Survey, offsets to the recently completed well on this tract. Texas Co. has location for No. 1 E. E. Hall, James Young Survey. American Liberty Oil Co. No. 1 Marcus Rembo, J. H. Reeves Survey, is drilling at 3,420 feet, and R. W. Norton No. 2 Mary Rives, John Collum Survey is drilling at 4,653 feet.

ARKANSAS

Interest in this district continues to be centered around three deep tests, one in Ouachita County and two in Lafayette County. In the former, Phillips Petroleum Co. No. 1 J. D. Reynolds, section 27-15-15, is arranging to test a 10-foot core of sand from 4,906-16 feet. Top of lime was logged at 4,904 feet. Erwin & Leach No. 3 Bodcaw Lumber Co., section 20-16-23, Lafayette County, is coring at 5,580 feet and south of this test in the same county, Joe Modisett No. 1 Red River Lumber Co., section 21-19-24, is drilling in lime at 4,850 feet.

Receive Service Awards

W. D. Roberts, assistant treasurer; N. R. Grimshaw, assistant general sales manager in charge of the central division, and J. Clay Lee, manager of railway sales, of the Standard Oil Co. of Indiana, have been awarded gold pins symbolizing 30 years' service with the company.

Mr. Roberts began his career in the oil business in 1901 as office boy with the Republic Oil Co. at Cleveland, Ohio. He was transferred to a position as bookkeeper with Standard of Indiana in 1906. Mr. Grimshaw joined Standard as lubricating salesman in 1906, and Mr. Lee started in 1906 as clerk in the traffic department.

Mr. and Mrs. Charles W. Teater, of Saginaw, Mich., landed at New York last Thursday on the Europa, returning from London after a trip around the world. Mr. Teater opened Michigan's largest oil field in Porter Township, Midland County, in February, 1933. They continued home this week.

Southwest Texas District

LOPEZ EXTENSION IS SOUGHT; SAXET HEIGHT AREA DEFINED

By GEORGE WEBER

SAN ANTONIO, Tex., April 13.—Good indications of an important extension to the Lopez pool of Webb County, disappointments incurred by dry tests in the Saxet Heights field and failure of immediate production in a San Patricio wildcat which indicates new production there, and a generally sustained program of field and wildcat drilling throughout the section marked the week's developments in Southwest Texas. Drilling in the three most active fields of this section; Loma Novia, Seven Sisters and Saxet Heights show no decline as new locations continue to exceed completions.

Attention of many operators was directed to the Lopez field of eastern Webb County as the northern outpost test, Luling Oil & Gas Co. No. 1 Peal cored the Mirando sand, producing sand of the field, during the week and made a test. Top of the sand was logged at 2,077 feet, and the test was carried to 2,090 feet. A test between those limits showed gas with 500 pounds pressure during three minutes with a top choke of five-sixteenths inch and a bottom choke of one-half inch. The hole is now being drilled to the Pettus after which a Schlumberger test will be run in order to determine the possibilities for an oil producer.

The test is running high; as high as any well in the field to date, and if completed for oil production will add considerably to the size and shape of the field. Located due north of the east edge of present production, a few feet west of the Duval County line, it will tend to show the field structure as a northeast, southwest trend and will open much additional proven acreage. There is at the present time a considerable extent of proven acreage which is undeveloped, and this latest development if successful will extend the field to 4 miles in length and make it one of the largest sources of potential production in the district.

San Patricio County

In San Patricio County, Benedum & Trees Oil Co. No. 2 Welder, which a week ago looked like the discovery of another pool for the county, is yet of undetermined value. After setting casing on a sand which tested 200 feet of oil and 100 feet of mud at 5,696-5,710 feet, the test was brought in when it ceased flowing. The test was cored deeper and encountered sand with a gas odor, and 40 feet of sand with no show. At the latest report the test was drilling below 5,800 feet.

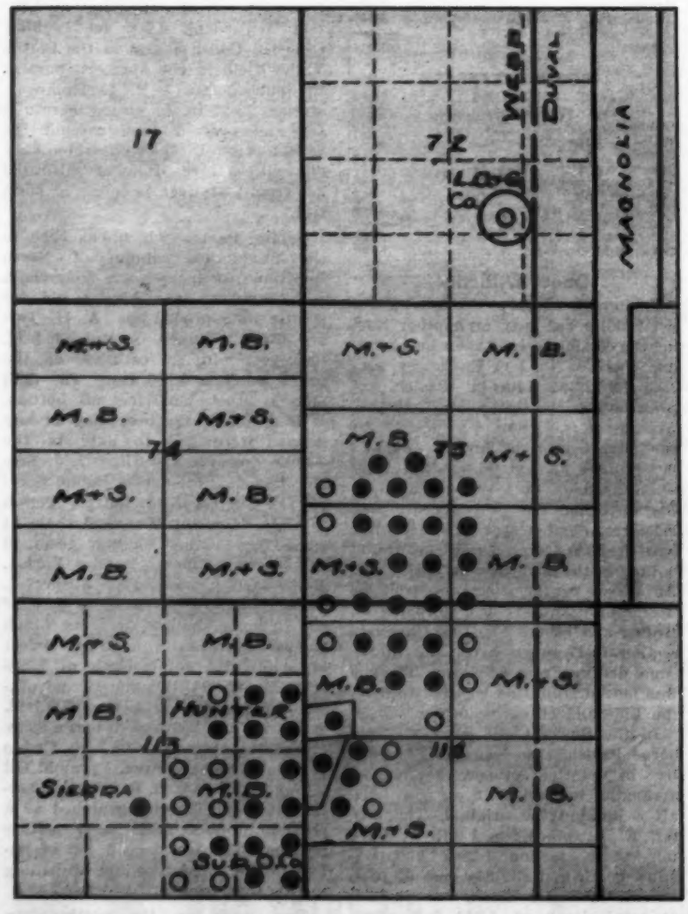
Nueces County

Activity in the Saxet Heights field of Nueces County continued at high pitch, although the field is being defined in new directions weekly. During this week, three tests were abandoned, two of them deep tests which had gone beyond the producing horizon of the field in search of pay in underlying formations. Culton & Republic Natural Gas Co. No. 1-C Baldwin, south outpost test in the field, was abandoned at 7,020 feet. The test made salt water in the 5,200 foot sand more than two weeks ago and had been carried to 7,000 feet with no shows. On the northeast edge of the field, D. H. Hawn No. 1 Hoxie, located in the Port View Addition on the edge of Corpus Christi which was about 1,200 feet northeast of No. 1 Skipper, edge producer was dry and abandoned at 4,121 feet. The Port View Addition test and the Skipper test were drilled after a producer was brought in on the Shely Tract, constituting a considerable extension to the field at the time. The other deep test, J. P. Nash No. 1 Hatch, a south edge test was abandoned during the week after having been carried to 5,200 feet.

In spite of the failure on the south and northeast, eight producers were added during the week, and no let up in the activity is immediately expected.

The Saxet field in the same county saw sustained drilling, with an important completion in the 5,800 foot sand as the Holliday Oil Co. No. 1 Griffith was brought in for more than 500 bbls. per day initial production. The well had previously been completed as a gasser, and was deepened. The 4,400 foot sand of the Clarkwood section was extended eastward by the completion of Texon Royalty Co. No. 1 Scoggins which was cleaning in the pits at the latest report from sand at 4,409-13 feet.

In San Patricio County, the two active fields at present are being further developed; the Plymouth field with two more producers and the Taft field with a good test in the 3,900 foot sand. Shell Petroleum Corp. No. 1 Pullin, a west offset to the discovery well, tested 35 thribbles of oil according to a late report, from the sand around 3,900 feet. This sand was the producer in the Humble No. 1 Mayo which revived interest in the field after two tests had failed in the deeper 4,900 foot sand which produced the discovery well, Geo. E. Smith No. 1 Britton.



North section of the Lopez field in Eastern Webb County showing Luling Oil & Gas Co. No. 1 Peal

Aransas County

To the southeast, in Aransas County, Buckingham Oil Co. No. 1 McCampbell near the town of Aransas Pass opened production late in the week, when it tested a sand below 6,500 feet. Exact log of the sand was not learned, but the test was reported flowing through the testing tool and drill stem after the tool has jammed open. The test is bottomed at 7,500 feet and an electric survey was recently run showing the sand which is now flowing.

Laredo District

The Laredo district saw a very active week from the standpoint of new production, primarily due to activity in three fields, Loma Novia, Seven Sisters and Lopez. The Loma Novia field in northern Duval County had 16 new producers, most of them completed in the south part of the field. The drilling of inside locations is continuing very active in this field, adding considerably to the area's production each week. Initial production ranged from the allowable figure on pumpers to 700 bbls. per day. One gasser was completed making an estimated 15,000,000 feet per day.

The Seven Sisters field is the scene of active drilling with rigs in all parts of the pool. Seven producers were completed here during the week, in the extreme south, west and north parts of the field. One was brought in flowing from the Chernosky sand, and the remaining six were completed in the Government Wells. Shell Petroleum Co. test, No. 2-B Welder, on the east edge of the production in the south part of the field was abandoned at 4,004 feet. The well tested salt water in the Government Wells sand topped at 2,635 feet, and was carried to the 4,000 foot level without encountering any shows.

The Hoffman field outlook brightened somewhat during the week, with two new producers and one abandonment. Rogers & Rogers No. 2 Sutherland, section 120, located northwest of No. 1 Sutherland producer was abandoned at 3,027 feet. Adjoining the Rogers lease on the east, Duval Oil Corp. completed No. 2 Ruiz, section 119, for 18 bbls. per hour, one of the best wells of the new field. To the southeast, Standard Oil Co. of Kansas completed No. 1 Hoffman, in section 118.

Webb County

Five new producers were added to the Lopez field of eastern Webb County, one of which was a gasser

(Continued on Page 208)

West and North Texas

GOOD PRODUCER IN YOAKUM STIRRING NEARBY COUNTIES

By L. E. BREDBERG

FORT WORTH, Tex., Apr. 13.—A good well west of the Sayre-Howe pool and north of the old Hendricks field in Winkler County may mark an extension and prove several hundred more acres. Shooting of the southeast Yoakum County wildcat developed it into a good commercial producer, and an Ordovician test in Crane County logged an oil showing. Thirty locations were staked in West Texas, five for wildcats. Twenty-eight tests were completed.

The important feature of the week was the change in Cascade Oil Corp. and Honolulu Oil Corp. No. 1 Bennett, section 678, Block D, John H. Gibson Survey, southeast Yoakum County. This extreme wildcat discovery when drilled deeper showed some water, but after shooting with 370 quarts at plugged back depth of 5,265 feet, it flowed 235 bbls. of oil the first 24 hours, making a substantial commercial producer. It will result in other tests being spudded in Yoakum, Cochran, Gaines, and possibly Terry and Hockley Counties. It is 30 miles from production, to the west over in New Mexico and about 45 or 50 miles from production in Texas, in the Means pool in northern Andrews County. Texas Co. is to drill in League 38, Zavala County School lands on a 6,000-acre block in Hockley County.

Total depth of the hole was 5,282 feet, but it was plugged back to shut off water of questionable origin before shooting. It is being cleaned out preparatory to running tubing to test. It is flowing around 250 bbls. per day by heads when tools or bailer is pulled from the hole, making it appear good for at least 250 or 300-bbl. well, or better when cleaned and tubed. An offset is expected to be drilled.

Pipe line outlet may be delayed due to the remote location. The nearest line is in New Mexico and the nearest railroad on which loading rack can be erected is at Seagraves, about 12 miles southeast.

There are some 2,000 bbls. in storage at the well, and it will have to be shut in to allow erection of more storage. The Honolulu Oil Corp., which has Texas headquarters at Midland, has taken over operations and development of the leases which the two companies own jointly. Texas Pacific Coal & Oil Co. first geologized and leased the block, farming out part to C. J. Davidson of Fort Worth who interested Honolulu, consequently Texas Pacific is expected to start a test on an offset or nearby lease. Practically all major companies have acquired protection, Gulf Oil Corp. holding a large block to the northeast.

First oil showings were struck in September, 1935, between 5,094-96 feet, picking up more lime pay from 5,215-60 feet, which may also be acidized in another effort to increase production.

The increased production in this wildcat will make the Stogner test on the Roosevelt lands in section 215, Block D, about 17 miles northwest, in the northwest part of the county, and Cascade and Honolulu Oil Corp. test in southeast Cochran County, about 25 miles north and a little east, more interesting.

Oil Show in Glasscock

Fleetborn Oil Corp. No. 1 F. C. Dodson, southwest corner of section 13, Block 34, 3s, T.&P. Survey, 6 miles north of Garden City and 4 miles south of the small McDowell pool in northern Glasscock County, created some interest when it logged oil showings from 2,065 and 2,075-85 feet and showed some gas from 2,371-2,490 feet. The nearest producer in the McDowell pool is in section 43. This new wildcat missed the salt section, topping the Permian lime high. Elevation is 2,714 feet. Shell Petroleum Corp. has taken a block of some 4,500 acres northwest in an area in which a 3,600 foot dry hole was abandoned some years ago. The new block carries a drilling obligation. Others have been leasing in the area since the oil and gas showings were made.

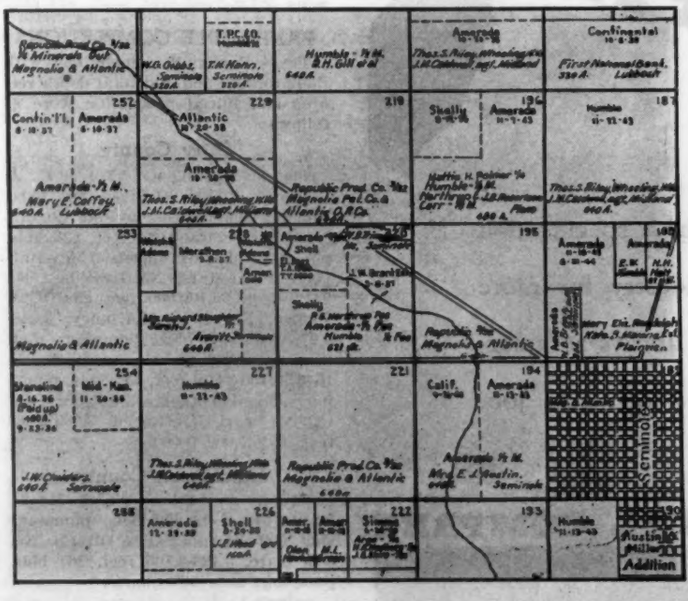
Crane Showings

The wildcat Ordovician test of Moore Brothers and others on the Barnsley lands in section 43, Block 32, P.S.L. Survey, about 8 miles southeast of the Tubbs pool in western Crane County, picked up small showings of oil from 2,925-40 feet this week, but is carrying the hole down, not stopping to test. This is one of the more important wildcats in West Texas, as it is to be carried in search of production from the deeper lime, from which production is coming in one well, Gulf Oil Corp. No. 1 Waddell, in the Tubbs pool.

Good Well in Winkler

R. H. Henderson No. 1-A Walton, in the northeast corner of section 9, Block 26, Winkler County, on acreage farmed out by the Humble Oil & Refining Co., came in making 350 bbls. in 45 minutes at total depth of 3,049 feet, later flowing 60 bbls. per hour through three-fourths inch choke on tubing. It is producing from the porous lime, which yielded big wells in the Hendricks pool to the south, but its subsea depth is below the established water level for the lime producing horizon, consequently it is in a dangerous position according to geologists who believe it will soon start showing water if allowed to produce except under a small allowable. It is west of the Sayre-Howe area. Henderson is also drilling on the adjacent section to the east, section 10.

The half mile northern extension to the south Ward County producing area, drilled by California Co. on the Lucie Adams lands, south corner of section 39, Block 34, H.&T.C. Survey, flowed 1,124 bbls. in the first 19 hours on a potential test. Total depth is 2,570 feet. Gulf Oil Corp. is moving in material to drill 1 mile due south, on a semi-wildcat location in the south corner of section 38, same block.



Map showing location of gas discovery well in Gaines County. Total depth 4,910 feet

(Map courtesy Zingery Oil Map Co., Fort Worth, Tex.)

Winkler Wildcat

Read and Duffey have made location for a wildcat in the northwest corner of section 8, Block A, G.M. M.B.&A. Survey, in southeast Winkler County, about 9 miles east of the nearest producers in the northeastern extension of the Gulf-O'Brien field.

Howard County Wildcat

D. C. Reed and others are moving in material for a wildcat 1½ miles northwest of Big Spring in Howard County, in the southeast corner of section 24, Block 33, Township 1n, T.&P. Survey, and is in absolute wildcat territory, falling several miles northwest of the Howard-Glasscock County production.

Jones County Wildcat

T. D. Humphrey, producer in Jones County, has staked a wildcat location on the J. M. Radford estate, section 19, Block 16, T.&P. Survey, 7 miles northwest of Abilene in Jones County, a number of miles west of the Hawley pool in Jones and northeast of the Noodle Creek field. It is to be drilled to 2,400 feet or in search of production from the King sand, from which production is found in the former pool. There are 36 tests drilling in the east half of Jones County and the western half of Shackelford County.

Martin No. 2-C Dorsey was completed for another good well in the Hawley pool. It was first drilled by Union Oil Co. and Shaheen and abandoned as dry in March, 1930, at 2,187 feet. It is in the middle of the now Hawley pool and when carried deeper by the new owners made 110 bbls. per hour from the lower pay at 2,212-16 feet.

Ranger and Wichita Falls

There are 128 drilling tests in West Central Texas, 15 locations being staked in Ranger with 15 tests completed this week.

New Test for Grayson

Pete Shaner of Ardmore, Okla., has moved in materials for a wildcat near the Grayson-Cooke County line 1½ miles southwest of Tioga and southwest of Sherman in Grayson County on the W. M. Blair estate, 115 acres in the Deaver Survey. He has 1,500 acres in a block surrounding the location, the test to go to at least 2,500 feet.

Southeast Cooke County, near the Grayson County line, is to have a wildcat test on a block of 2,500 acres, on the Abe Cox farm in the

J. T. Bloomfield Survey, 1½ miles east of Burns City.

B. H. Hilburn and associates are preparing to drill on the V. M. Hugon lands in the A. Myers Survey, Abstract 640, 3 miles north of Lindsay in Cooke County, another rank wildcat, Cooke and Grayson County being the two most important counties in the North Central Texas district from a wildcatting standpoint, at present.

There were 46 locations staked in North Central (Wichita Falls) district, although shortage of water is now acute, with about 75 per cent of the tests in Archer County shut down. The rest of the district is in fair shape as to water supply.

Panhandle District

There were nine locations in the Panhandle district with the same number of tests completed. At the last Railroad Commission hearing, the daily allowable was raised 2,000 bbls. to 60,800 bbls., but the purchasing companies are not taking all of the raise, some 1,700 bbls. per day "going begging." Whether the companies will adjust their purchases to include this additional oil is questionable.

WEST TEXAS COMPLETIONS

Andrews County

Tripplehorn No. 2 King, 4,370-82 feet, 287 bbls. Fuhrman Petroleum Corp. No. 3-B Boner, 4,265-4,504 feet, shot, 601 bbls.

Crane County

Gulf Oil Corp. No. 130 McElroy, 2,725-2,943 feet, shot, 1,112 feet; No. 131 McElroy, 2,700-2,900 feet, shot, 548 bbls.

Crockett County

Harris No. 1 Parker, dry and abandoned 2,016 feet, elevation 2,215 feet.

Garza County

M. L. Richards No. 1 Post estate, 2,802-23 feet, acidized twice, 60 bbls.

Ector County

Empire Gas & Fuel Co. No. 4 Wight, 4,125-4,296 feet, shot, 1,170 bbls. Tide Water Oil Co. No. 1 Wight, 4,070-4,303 feet, shot, 756 bbls.

Fisher County

Roeser and Pendleton No. 1-B Herring, 3,124-26 feet, 22 bbls. per hour on swab.

Glasscock County

Tribal Oil Co. No. 4-A Edwards, total depth 2,290 feet, plugged back to 2,230 feet, acidized, 190 bbls. oil and 200 bbls. water per day.

Howard County

American-Maracaibo Oil Co. No. 7-A Settles, 2,416-19 feet, acidized, 49 bbls. per hour. Sinclair Prairie Oil Co. No. 33 Dodge estate, 2,480-2,820 feet, shot 745 bbls.

Jones County

Martin No. 1-C Dorsey, 2,055-2,160 feet, 150 bbls. Humphreys No. 1 McDuff, dry and abandoned 2,609 feet.

Pecos County

Stanolind Oil & Gas Co. No. 16-B Tippett, 381-458 feet, 24 bbls. Trans-Texas Oil Co. No. 1 Caldwell, dry and abandoned 5,326 feet, plugged back to 4,405 feet, acidized.

Upton County

Black and others No. 3 Lane, 2,306-39 feet, acidized, 327 bbls. Ellis No. 2-A Robbins 2,030-80 feet, acidized, 624 bbls. Cordova Union Oil Co. No. 1-B fee, 2,062-2,176 feet, plugged back to 2,129 feet, shot and acidized, 22 bbls. oil and 50 bbls. water.

Ward County

Richardson Oils, Inc. No. 29-B Johnson, 2,380-2,570 feet, shot, 215 bbls. Peck and others No. 1 Reynolds, dry and abandoned 2,426 feet, elevation 2,438 feet.

Winkler County

Barnsdall Oil Co. No. 2-A Brown & Altman, 3,075-3,171 feet, 65 bbls. Gulf Oil Corp. No. 2 Clapp, 2,820-3,092 feet, shot, 601 bbls. Skelly Oil Co. No. 7 Halley, 2,780-2,910 feet, shot, 410 bbls. Mid-Continent Petroleum Corp. No. 5-A Howe, 2,781-3,010 feet, shot, 1,320 bbls. Magnolia Petroleum Co. No. 3 Sealey, 3,110-30 feet, shot, 240 bbls. Sayre Oil Co. No. 5 Daugherty, 2,772-2,980 feet, shot, 754 bbls. Sinclair Prairie Oil Co. No. 1-B Commins, 2,728-2,985 feet, shot, 440 bbls.

PANHANDLE COMPLETIONS

Texas Panhandle completions, with their top of sand and total depth records and initial production were as follows:

Gray County

Claude Drilling Co. No. 1 E. A. Gorenflo, 3,152-3,280 feet, 744 bbls., flowing. Empire Gas & Fuel Co. No. 2 Walberg, 2,920-3,034 feet, 523 bbls. pumping; shot 640 quarts. Hagy-Harrington and Marsh No. 1 Fields, 2,580-2,692 feet, 35,100,000 feet gas. S. J. Iverson No. 1 B. McKinney, 3,240-3,276 feet, 684 bbls., pumping; shot. Kewanee Oil & Gas Co. No. 19 Smith-Rest, 3,150-3,250 feet, 577 bbls. pumping; shot 440 quarts. Saulsbury Oil Co. No. 1 E. R. Husted, 2,680-2,863 feet, 15,800,000 feet gas.

Hutchinson County

Holmes and others No. 3 Moore, 3,010-3,100 feet, 659 bbls. pumping; shot 500 quarts. U-Tex Oil Co. No. 3-B Ware, 3,123-3,165 feet, 567 bbls. pumping; shot 360 quarts.

Wheeler County

Royal Oil & Gas Co. No. 28 Keller, 2,395-2,548 feet, 2,242 bbls. flowing.

WEST CENTRAL TEXAS COMPLETIONS

Brown County

Kirkpatrick and others No. 11 Williams, total depth 3,013 feet, 30 bbls. West Texas Oil & Gas Co. No. 3 Grothers and Smith, total depth 1,684 feet, 1,936,000 feet of gas.

Callahan County

Henderson No. 1 Taylor, dry and abandoned at 830 feet. Hornbeck and Hughes No. 1 Jackson, dry and abandoned at 970 feet. Pueblo Petroleum Co. No. 2 Jackson, total depth 937 feet, 10 bbls.; No. 5 Snyder, dry and abandoned at 1,203 feet. St. John No. 3 Kniffen, dry and abandoned at 1,942 feet. Turnbow No. 3 Sherrill, temporarily abandoned at 1,050 feet. Ungren and Fracier No. 1-G Jackson, 999 feet, 12 bbls. of oil and 5 bbls. of water per day; No. 2-G Jackson, 1,010 feet, 5 bbls.; No. 3-G Jackson, 1,009 feet, 15 bbls.

Eastland County

Estes and others No. 1 Gentry, total depth 3,100 feet, 30 bbls. Hoff No. 2 Wright, dry and abandoned at 1,477 feet. Arab Gasoline Co. No. 1 Thorpe, total depth 1,705 feet, 31,500,000 feet of gas. Monrak Oil & Gas Co. No. 1 fee, dry and abandoned at 1,665 feet.

Comanche County

Brewer and others No. 1 Payne, 2,851 feet, 1,110,000 feet of gas.

Coleman County

Burleson and others No. 1 Ray, temporarily abandoned at 1,020 feet. Eppenauer Drilling Co. No. 4 Shields, 1,884 feet, 125 bbls.

Erath County

Cruse No. 1 Waddlington, temporarily abandoned at 3,485 feet.

Hamilton County

Seaboard Oil Corp. No. 1 Rea heirs, total depth 2,455 feet, 11,690,000 feet of gas.

Shackelford County

Albany Oil & Gas Co. and others No. 7 Davis, total depth 1,660 feet, 15 bbls. of oil and 15 bbls. of water per day. Alexander No. 3 Ghio, total depth 597 feet, 5 bbls. Baker and Pardue No. 2 Morris and Buie, total depth 1,603 feet, 200 bbls. Callahan No. 1 fee, dry and abandoned 1,040 feet. Charter Oil Corp. No. 6 Mimms, total depth 1,612 feet, 177 bbls.; No. 7 Mimms, total depth 1,608 feet, 227 bbls. Clay Dome Oil Co. No. 1 Jeter, dry and abandoned at 1,216 feet. Cohen No. 2 Baker, total depth 1,627 feet, 40 bbls. Eppenauer Drilling Co. No. 2 Morris & Buie, total depth 1,585 feet, 237 bbls. Gilman and McMurry No. 13 Jeter, total depth 945 feet, 10 bbls. Grisham & Hunter Oil Corp. No. 1 Davis, dry and abandoned at 1,254 feet.

Hickok and others No. 1 Dawson and others, dry and abandoned at 1,641 feet. Hoffman and Page No. 17 Morris and Buie, dry and abandoned at 1,912 feet. Humble Oil & Refining Co. No. 2-A Nail, dry and abandoned at 1,660 feet; No. 2 Lee, dry and abandoned at 830 feet. Owens and James No. 2 Morris and Buie, total depth 1,517 feet, 47 bbls. Roeser & Pendleton and Humble Oil & Refining Co. No. 1 Davis, dry and abandoned at 1,958 feet. Root and others No. 1 Vickers, dry and abandoned at 1,660 feet. Strong No. 1 Dodson, dry and abandoned at 824

(Continued on Page 203)

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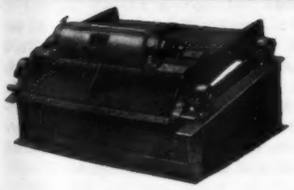

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C. & C. Drilling Co., headed by T. A. Carlton of Houston who has marked up several remarkable drilling records on the Gulf Coast added another to his list which has apparently resulted in the discovery of a new oil field when he bottomed the hole of Salt Dome Oil Corp. No. 2 A. B. Lawrence in oil sand at a depth of 6,661 feet in 15 days drilling time, that included additional time in cutting 12 cores. The well is on the edge of Galveston Bay on what is known as the Cotton Lake prospect in northern Chambers County and tested 750 feet of pipe line oil on an eight-minute drill stem test from a depth of 6,652-61 feet and 7-inch casing has been cemented at 6,647 feet. This is probably the fastest time ever made on a wildcat where the characteristics of the subsurface and surface conditions are unknown. At the South Houston field, C. & C. Drilling Co. and Dick Schwab No. 1 Theo. Bennett is bottomed at 1,235 feet where surface casing has been cemented.

W. V. Bowles has apparently extended the production of the Manvel field in Brazoria County to the northeast by the showing of his No. 5 Norvell which is bottomed in oil sand at 5,707 feet, with 7-inch casing cemented at 5,680 feet. In the same field but for the Texas Co. No. 5 Rash is drilling in shale and lime below 2,977 feet.

Smith and McDannald have plugged back to 7,375 feet on No. 2 Smedes at the St. Martinsville field for Tide Water Oil Co., and are preparing to test. The hole was originally bottomed in a sidetracked hole at 8,735 feet. In the same field for Continental Oil Co. No. 1 fee is drilling below 8,259 feet. In the meantime progress is being made on nine other wells located from Coastal Louisiana to the Southwest Texas district.

Edwards Drilling Co. opened the first oil production for the south extension area of the Dickinson field in Galveston County by completion of Coast Petroleum Co. No. 3 Maco Stewart through perforated casing from 8,535-45 feet for an initial production of 600 bbls. per day through a quarter-inch choke with tubing pressure and casing pressure equalized at 1,150 pounds. The well is east of two distillate producers. At the same field, Pure Oil Co. No. 3 Shelor is being swabbed and is showing approximately 1,300 pounds of gas pressure. In the meantime, two wildcats are scheduled to be spudded during the week, David B. MacDaniel No. 1 Mills at the Grigsby prospect in Hardin County, the contract depth of which is 7,500 feet, and Texas Canadian Oil Co. No. 1 Bland in the James Dyson Survey, Orange field, Orange County.

L. W. Capps has abandoned the wildcat test of J. K. Lewis No. 1 Lockemore in Jefferson Davis Parish, Louisiana, at 7,095 feet, and is shut down at 5,146 feet on G. W. Johnson No. 1 Drymalle in Colorado County.

Rutherford Drilling completed another good producer for Skelly Oil Co. at the Van Vleck field in Matagorda County when No. 4-B Cobb flowed 524 bbls. of pipe line oil in 16 hours through a quarter-inch choke with tubing pressure 1,600 pounds and casing pressure 2,275 pounds. The hole is bottomed at 7,502 feet and is producing through perforated casing from 7,480-97 feet. No. 1 Langham is drilling in shale and lime below 4,200 feet.

Loffland Bros. are preparing to abandon a deep test in Calhoun County of Continental Oil Co. and progress is being made on four other wells, one in Matagorda County for Continental Oil Co. and three at the Tepetate field in Acadia Parish for the same company.

Al Buchanan, San Antonio contractor, with 14 rigs active in Southwest Texas is due for several completions as several tests are on the producing sands in the Loma Novia, Seven Sisters, and Plymouth fields. Benedum & Trees Oil Co. No. 2 Welder, San Patricio County wildcat, was drilling after testing oil but failing to find appreciable production in a

Continued on Page 198)

Taken at Pure Oil Co. No. 1 Paige, Wharton County, Texas. Standing, left to right: E. W. Lowden, Pure Oil Co.; I. W. Kibedoux, Pure Oil Co.; I. W. Alcorn, chief engineer; C. C. Brown, equipment manufacturer; R. W. McIlvain, Jr., assistant division manager Pure Oil Co., and Frank Manning, driller, Pure Oil Co.

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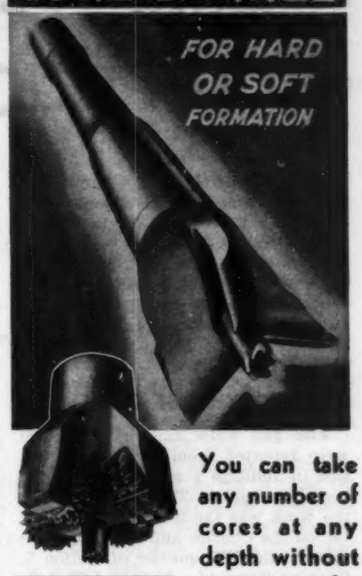

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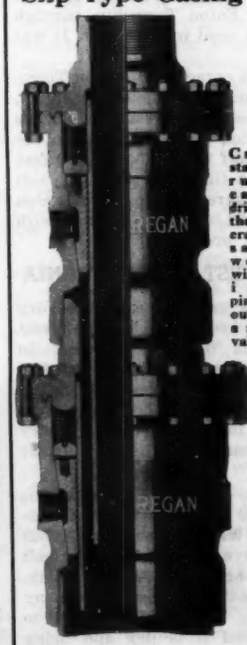

Can be installed before running the casing. By drilling through the head, several hours are saved that would otherwise be spent in stripping over blowout preventers and drilling valves before landing the casing.

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Eastern Field Report

DEEP TEST LOCATION MADE IN COLUMBIANA COUNTY, OHIO

By STAFF CORRESPONDENT

PITTSBURGH, Pa., Apr. 13.—There were fewer wells completed in the lower Eastern fields during the week than usual, but this is offset by interesting new work starting in all three of the lower Eastern districts. During the week 10 gas wells, two producers with an initial production of only 11 bbls., and five dry holes were reported.

SOUTHEAST OHIO

Two gas wells and one dry hole were reported from Southeast Ohio, and in addition a new deep test has been announced. The best well for the week was the test of Preston Oil Co. on the Charles and H. A. Gilmore farm in the NW quarter of section 6, Reading Township. It was drilled in the Clinton sand at 2,810 feet and has 3,000,000 feet a day, naturally. It also had a small showing of oil and the well will not be shot at present time.

In Cuyahoga County on City Lot 300 in the city of Cleveland, Ferro Enamel Corp. completed No. 3 on its own property at 1,030 feet. It is a gas well gauging 250,000 feet a day.

In Lorain County, William Dempsey drilled on the J. Palmer farm in section 13, Eaton Township, through the Clinton sand to 2,668 feet. It was dry.

In the SE corner of Madison Township, section 31, Columbiana County, Natural Gas Co. of West Virginia has made location for a deep test on the W. Strudthoff farm, about 4,600 feet south of its Oriskany sand gas well on the Margaret Jenkins farm which gauges over 1,500,000 feet a day with a high rock pressure.

SOUTHWEST PENNSYLVANIA

One small gas well and three dry holes were reported in Southwest Pennsylvania during the week. In Allegheny County, Rodgers Development Co. drilled a second test on the Bauman heirs farm through the Fifth sand to 2,230 feet. It was dry in all formations. It is in Harmar Township.

In Greene County, Equitable Gas Co. deepened No. 1 on the Peter Tustin farm in Wayne Township to 3,548 feet, the Bayard sand. It is a small gas well gauging 68,000 feet a day. In this township, the same company deepened No. 1 Charles C. Davis to 3,133 feet and it is dry and being plugged.

In Richhill Township, Green County, Manufacturers Light & Heat Co. drilled on the Albert Lyons farm to 2,989 feet and it was dry.

In Amwell Township, Washington County, Union Gasoline & Oil Corp. has reached 2,679 feet on the Thomas Bebout farm, and has completed rig on the H. VanKirk (Marion Johnson) farm. South Penn Oil Co. is getting ready to drill three tests in this township, one on the Lowery farm, one on the Zimmerman tract, and one on the Seese tract.

In Morris Township, Washington County, south of this Fifth sand streak, A. V. Lewis and others are spudding on the D. L. McVey farm. John Conklin and others reached 3,231 feet in deepening on the H. Sanders farm. The Fifth sand extended from 3,172-3,211 feet.

In South Strabane Township, in Washington County, Victor Behm and others are shut down at 1,700 feet on the William Paul & Sons farm. In East Bethlehem Township, James Hagerman is drilling at 2,520 feet on the Emory heirs farm. Bentleyville Fuel Co. is down 1,600 feet in No. 1 Wherry heirs farm. In Perry Township, Fayette County, Carnegie Natural Gas Co. is down 3,325 feet in No. 1 Lauder farm being deepened. In Morris Township, this company is down 2,835 feet in deepening No. 1 Wade. The Gantz sand was at 2,668-97 feet; the Fifty-foot sand was at 2,777-2,818 feet.

In Greene County, Burleigh Wright is drilling at 1,600 feet on the D. C. Yoders farm. Penn Ohio Gas Co. started deepening on the Harry Clutter farm at 1,862 feet and has made 8 feet. In Richhill Township, Greene County, Lewis & Co. has reached 1,800 feet on the Samuel Chess farm. Natural Gas Co. of West Virginia is down 2,875 feet on the Thomas Holmes farm. The Gordon sand was at 2,750-73 feet with a fair volume of gas at 2,763 feet.

Deep Tests

The deep test of Norwood Johnson and others on the James McBurney farm, 2 miles south, 23 degrees east, of the school house at the cross roads at Hickory in Pleasant Township, has started drilling. It is down 1,150 feet. This will be an interesting test as the location was made after considerable seismograph work and the test will probably reach 6,500-7,000 feet.

On Chestnut Ridge in South Union Township, Fayette County, William Snee and others are down 6,240 feet in the deep test on the Summit Hotel property.

WEST VIRGINIA

Two producers were completed in West Virginia during the week but there is an interesting report of one nearing completion. In Grant district Ritchie County, along Bear Run, Moats and Richards in drilling a second test on the Stout and Jackson lease (mapped as the Elizabeth Harkness farm) had a flow of oil from the Maxon sand and it made 25 bbls. the first flow. As this sand has not been drilled through nor shot it is too early to determine whether it will be a commercial producer or not. No. 1 was a heavy gas well in the Keener sand and if the second test continues as a Maxon sand producer it will in all likelihood open a new pool.

In Calhoun County, K. M. Hunt and others drilled on the Brad Gainer farm to 2,666 feet, the Berea sand, and after a 80-quart shot, it is a 1-bbl. pumper. It is in Sherman district.

In Roane County, K. M. Hunt and others completed a second test on the T. J. Murray 26½-acre farm in Curtis district in the Salt sand (1,579-96) feet and total depth of 1,604 feet. It is a 10-bbl. producer.

In the Tanners Run pool in DeKalb district, Gilmer County, Hope Construction & Refining Co. cleaned out No. 8 on the J. M. Butcher lease and doubled production.

Gas Wells

There were four gas wells completed in the Salt Rock district in Cabell County. In McComas district, Hillcrest Gas Co. completed the largest. On the Elsie D. McComas farm this company completed a second test gauging 5,252,000 feet a day. Big Lime was at 1,278-1,432 feet; Big Injun sand at 1,497 feet with gas showing at 1,498 feet. A second large well was completed in this district. Wagoner Gas Co. completed a test on the J. D. Bias farm at 1,281 feet. Big Lime was at 1,287-1,432 feet; Big Injun sand at 1,278 feet and 4,552,000 feet showing at 1,278 feet.

In the same district, Kentucky West Virginia Gas Co. completed a test on the Albert Keenan farm at 2,670 feet. Brown shale was at 3,102-3,670 feet and about 105,000 feet of gas at 3,107-3,456 feet. In Guyandotte district, National Gas Co. completed a test on the F. L. Whitaker farm at 2,700 feet. Big Lime was at 1,070-1,240 feet; Big Injun sand at 1,240-1,390 feet; the Berea sand at 1,850-1,930 feet; Brown shale at 2,390-2,680 feet, with about 1,250,000 feet of gas showing at 2,535-2,600 feet.

In Kanawha County, Owens Illinois Glass Co. completed a second test on the L. A. Christy farm gauging 568,000 feet a day. Big Lime was at 1,030-1,227 feet; Big Injun sand at 1,227-77 feet; Berea sand at 1,663-64 feet, with gas at 1,262, 1,315, 1,370, 1,570, 1,620 and 1664 feet. It is in Loudin district. In Washington district, Cambridge Gas Co. deepened No. 5 Garnet Wiseman and others to 3,232 feet, Brown shale, and it gauges 330,000 feet a day.

In Lincoln County, G. H. Jackson and others deepened No. 1 on the Janie Scites farm in Laurel Hill district to 3,022 feet. It was started at 1,818 feet and Brown shale was at 2,207-2,997 feet, with about 375,000 feet of gas showing at 2,705-40 feet.

In Ritchie County, King Knob Oil & Gas Co. drilled deeper No. 1 William Hill in Murphy district to 2,175 feet, the Injun sand, and it was dry and will be plugged.

Deep Tests

No deep sand tests were completed in Kanawha County. Several are nearing the sand and there may be a new test starting which has not been announced as a deep test. It is that of Glenn Oil & Gas Co. on the Virginia Joint Stock Land Bank lease in Elk district about 3 miles north of the fair wells on the G. and D. Copenhaver farm. It was spudded this week. In this district, Columbian Carbon Co. is down 4,988 feet in No. 3 G. and D. Copenhaver, and 4,678 feet on the M. M. Robertson farm. Its test on the W. H. Baxter and others lease is being cleaned out at 4,525 feet after a casing collapse. The test on the W. L. Burdette farm is drilling at 4,882 feet and on the Elkland Improvement Co. at 1,937 feet. V. C. Smith and others are down 5,410 feet on the island at the mouth of Coopers Creek and nearing the Newburg sand. Benedum & Trees have spudded the second test on the Mary C. Wingfield farm. Yoak Oil & Gas Co. has started drilling No. 2 W. T. and J. H. Goshorn.

In Malden district, Kanawha County, Godfrey L. Cabot, Inc., is down 2,625 feet on the W. D. Lewis farm and 1,350 feet in No. 9 Campbells Creek Coal Co. No. 10 has also been started and is at 100 feet. This operator has also completed rig for a second test on the Nellie B. Tompkins farm.

In Loudin district, Godfrey L. Cabot, Inc., is down 1,215 feet in No. 2 Kanawha Land Co. United Carbon Co. has reached 2,700 feet on the C. C. Dickinson farm. In Poca district, W. O. Zeibold and others are down 4,790 feet on the D. A. Griffith farm and nearing the sand.

Other Operations

In Boone County, Pond Fork Oil & Gas Co. is moving in material to start No. 23 on the Cole & Crane lease in Washington district. Ira G. Sayres has rigged up to deepen No. 8 Roman Pickens on Big Hewitts Creek, Scott district.

In Cabell County, Kentucky West Virginia Gas Co. has made a location on the A. D. Bledsoe farm on Toms Creek in McComas district. In this district, West Virginia Gas Co. has a location on the E. J. Nichols farm on Smith Creek, and also on the F. F. Vance farm on Tyler Creek. Hillcrest Gas Co. has made location on the J. Albert Gill farm on Tyler Creek. Kentucky West Virginia Gas Co. is spudding on the Arnold Walker farm. R. H. Adkins and others has spudded on the Demma Morrison farm.

In Clay County, Virginian Gasoline & Oil Corp. is down 900 feet in

(Continued on Page 195)

Michigan Field Report

By PAUL A. ELLIOTT

GOOD MONROE COUNTY WELL REVIVES FAITH IN OLD FIELD

MUSKEGON, Mich., Apr. 13.—Discovery of a good-sized well in an old southeastern Michigan field first tested in 1888, indicated extension of two year-old fields in central Michigan, addition of 78,000,000 feet of natural gas open flow in the Tri-Townships field of central Michigan and discovery of a small gasser in Ogemaw County featured last week's drilling developments in Michigan.

Average daily crude production also continued a steady rise and a review of March revealed completion of gassers with an aggregate open flow of more than 300,000,000 feet daily establishing a new state record.

The new southeastern well, largest ever encountered in Michigan's oldest oil territory, was the A. V. Oil & Gas Co. No. 1 Frank & Josie Roe, SE SE SW section 19-6s-6e, Dundee Township, Monroe County, near the village of Deerfield.

It was brought in with a shot of 120 quarts of nitro in the Trenton limestone, a nonproducer in any other field as yet, and made about 10 bbls. an hour flowing by 20-bbl. heads every two hours. The Limestone was topped at 2,068 feet and drilling suspended at 2,109 feet.

It was reported about 500 feet of oil stood in the hole before the shot, with drillers unable to bale it to less than 100 feet for the shot. It will be placed on the pump as soon as it stops flowing and a second test will be started immediately on the same lease.

The A. V. Oil & Gas Co. temporarily abandoned another test in the same township, the No. 1 Esther Vandercook, SE NE section 30, removing the rig.

Pure Transportation Co. will truck the high-grade Trenton crude direct to the Pure Oil Co. refinery at Toledo, Ohio, about 30 miles south.

Two old Trenton wells capable of making 5 to 10 bbls. a week on the pump are located within 1,000 feet of the new producer. It is said the Monroe-Lenawee County field has produced about 5,000 bbls. of oil since 1898. The area is covered with less than 100 feet of glacial drift, making drilling comparatively easy with light machines. A 15 to 25-bbl. well would be as profitable here as a 100-bbl. well in other Michigan areas.

Socony-Vacuum Oil Co. is still trying to recover collapsed casing from the No. 1 McCarberry, section 36, Macomb Township, Lenawee County, a wildcat which was shot for a show in the Trenton.

Crystal Extension

The Crystal-Montcalm field of central Michigan was extended about half a mile eastward last week by the completion of McClanahan Oil Co. No. 1 Moses R. Honderich, NW NW NW section 1-10n-5w, as a 500-bbl. natural initial well in the Dundee. Limestone was topped at 3,186 feet and drilling completed at 3,193.5 feet. The well was making 10 bbls. an hour under back pressure and without water encroachment.

Three to six offset wells will be started immediately by Leonard, Gulf Refining and others. The new well came at an opportune time with operators seeking new locations in a field with most of the proved acreage drilled.

J. W. Leonard, Jr., trustee's No. 1 Norval Brown, NE SE SW section 11, Crystal Township, also was brought in with a flow of about 100 bbls. a day from the Dundee topped at 3,182 and drilled to 3,193 feet.

Gulf Refining Co. was preparing to swab the No. 2 Harzey J. Fisher, SW NE NE section 2, Crystal, after the hole filled up with Dundee oil, but did not flow.

J. W. Leonard, Jr., No. 1 Otto and Goldie Durbin, discovery well of the Crystal field, drilled into the Dundee March 28, 1935, was increased in production somewhat last week by removal of the tools and line left in the hole more than a year ago. The well has produced upwards of 500,000 bbls. of oil since it came in for about 5,000 bbls. a day, the largest discovery well of any Michigan field. It has never been on the pump.

Daily Crude Oil Co. No. 3 Hansen was completed as a 110-bbl. Traverse producer, located SW NE NW section 10-12n-6w, Home Township, Montcalm County. Traverse was encountered at 3,028 feet and the hole completed at 3,117 feet. It was treated with acid.

Jetter Oil Co. No. 1 Laurence Pitcher, SE SE NW section 5, Crystal west extension test, was expected to case this week below 3,200 feet.

Beaverton Extension

One week after being extended half a mile to the northwest, the Beaverton Township, Gladwin County field, showed indications of a mile east extension in the Sun Oil Co. No. 1 James Reid, NW NW SW section 12-17n-2w, same township, last week.

Drilling was suspended to move in field tanks when a good show of oil was encountered at 3,904 feet, 64 feet in the Dundee, or about 12 feet lower than other producers in the area. A 500-bbl. tank was being moved in from Mills Township, Ogemaw County.

Great Lakes Oil Co. No. 1 Campbell, the northwest extensioner, located SE SE NE section 3, Beaverton, settled down to about 100 bbls. a day on the pump at 3,909 feet. The Dundee was topped at 3,837 feet. Another test is scheduled on the same lease.

New Gassers

Three new gassers in the Michigan Stray sands added about 78,000,000 feet of daily open flow capacity to the already leading Michigan field in Millbrook-Hinton and Belvidere Townships, Mecosta and Montcalm Counties, last week.

Largest of the three was Ross & Bernier No. 1 M. Dawes, C SW NE section 4-12n-7w, Belvidere-Montcalm, which made 30,000,000 feet a day at 1,290 feet, 22 feet in the Michigan Stray topped at 1,268 feet.

Gordon Oil Co. No. 1 E. J. DeSpelder, C SE SW same section, was completed for 24,687,000 feet at 1,299 feet.

Hyatt-Norton No. 1 C. E. Garner, C NW SW section 33-13n-7w, Millbrook Township, Mecosta County, had an open flow of 23,000,000 feet a day at 1,294 feet after topping the Michigan Stray at 1,278 feet. It was the only addition last week in this section of the field.

Six other tests in the central state field, including two southeast edge tests, were expected to complete this week. The farthest to the southeast is D. F. Jones No. 1 Abraham Sherman, C SE SE section 10, Belvidere, which was ready to case, and the other was the Turner Petroleum Corp. No. 1 M. Dawes, C NE NW section 15, also in Belvidere, already cased.

Four other near completions, including Hy-Nor Gas & Oil Corp. No. 1 Eckert, C N half NW SE section 10, Belvidere; Ross & Bernier No. 1 W. H. Fouts, C SW NE section 3, same township, and two more in Millbrook, Leslie T. Barber and others No. 1 James Stephens, C NE SW section 29, and Edward Stewart No. 3 Henry G. Houghton, C SW NE section 33.

Ide & Glavin No. 1 Secoy, section 25, Hinton Township, and Taggart Brothers No. 22 on the Rennie lease, section 33, Colfax Township, were other near gas completions in Mecosta County.

Gratiot Gasser

New Haven Oil & Gas Co. struck a flow of 8,000,000 feet of gas daily in the No. 1 Benjamin Shaver, C NE NW section 4-10n-4w, New Haven Township, Gratiot County, east of the Crystal oil field at a depth of 955 feet. It was to be drilled deeper in search of a second and larger gas pay.

Ogemaw County

Muskegon Development Co. struck a small Traverse gasser in the No. 2 A. L. Garnett, NE SW NW section 28-22n-2e, West Branch Township, Ogemaw County. It gauged 670,000 feet and will be produced to provide fuel for the Producers Refinery now under construction in the village of West Branch. The Traverse gas was topped at 1,769 feet and the hole completed at 1,778. It showed a 700-pound rock pressure. It will be acid treated for an attempted increased flow.

Success is hoped following a second acid treatment of the Sun Oil Co. No. 2 State, NW SE NE section 1-21n-2e, Horton Township, Ogemaw County, with 1,000 feet of oil in the hole. Dundee was first encountered at 2,470 feet and the hole drilled to 2,626 feet.

Kinwell Oil Co. No. 2 Golf Club, NW SW SW section 20, also in West Branch, had about 1,800 feet of oil in the hole and was ready to treat in the Dundee topped at 2,573 feet and drilled to 2,751 feet.

Acid treatment brought production of 60 bbls. a day in the Melling Oil & Gas Co. No. 3 L. Roma, section 6, Mills Township. Dundee was reached at 2,454 feet and drilling suspended at 2,613 feet.

Midland County

Gordon Oil Co. No. 6 Muscott and others, NE NE NE section 17-13n-1w, Porter Township, was the only Midland County completion last week. It made 75 bbls. during the first 24 hours after acid treatment, or triple the natural output. Dundee was topped at 3,402 feet and the well finished at 3,423 feet.

J. V. Wicklund No. 1 Esther Rohrer, SW SW NW section 7-16n-1w, a Midland County wildcat drilling in search of a possible southeast extension of the Beaverton-Gladwin pool, was reported about 3,400 feet deep and nearing completion in the Dundee.

Pure Oil Co. was trying to shut off water in the No. 22 Mina Narmore, C S N SW section 15, Porter Township, estimated good for a 25 to 50-bbl. pumper in the Dundee.

Saginaw County

Smith Petroleum Co. added another 20-bbl. Berea producer in the Birch Run, Saginaw field, last week completing the No. 4-A F. M. and A. C. Morse, NE SE NW section 20-10n-6e, at 1,548 feet. Berea was topped at 1,527 feet and the well given a shot of nitro.

Mid-State Development Co. No. 1 A. J. Burleson, SE SW SE section 21-10n-5e, Taymouth Township wildcat, was cased at 2,395 feet and shut down at 2,612 feet, believed on top of the Dundee. It is scheduled to complete within a week or 10 days.

St. Louis Pipe & Supply Co. No. 1 John Yadovack, SE NW SE section 13-10n-2e, Brant Township, continued shut down at the casing point of 2,853 feet, just above the Dundee. Charles Bell was drilling in the Traverse in a Fremont Township wildcat, the No. 1 Anna and Ludwig Wegner, SW SW NW section 10-11n-2e, at about 2,650 feet.

Western Michigan

Two western Michigan wildcat tests, one in Mason County and the

(Continued on Page 203)

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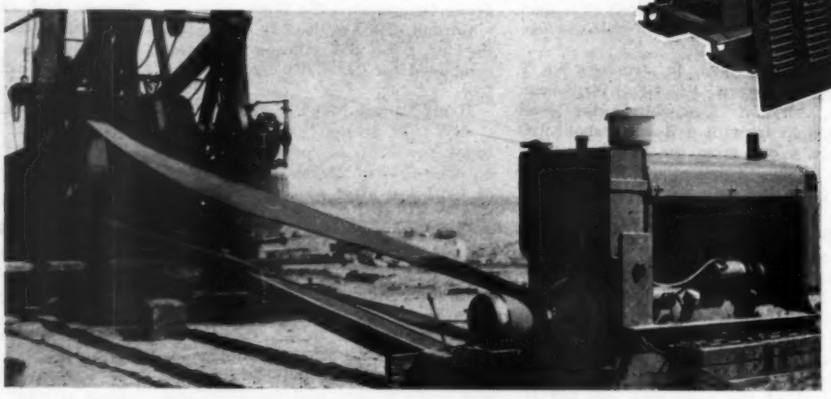

Above: **The Cummins-Diesel Model HP-602.** ***Left:*** **The Cummins-Diesel owned by W. & E. Production Co., operating a Super-J Fort Worth Spudder four days, deepening well from 2205 ft. to 2255 ft.**

SEE THESE COLD-STARTING CUMMINS-DIESELS

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Above: **Noble Drilling Company's two 200 h. p.** ***cold starting*** **Cummins-Diesels on a rotary drilling rig. Now drilling the sixth well north of Seminole. A duplicate rig also owned by Noble has just started a deep hole test south of Wilson in Carter County.** ***Left:*** **Two Cummins-Diesel Models L-P-602.**

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East and East Central Texas

THREE TALCO AREA FAILURES UPSET GEOLOGICAL THEORIES

By L. E. BREDBERG

DALLAS, Tex., April 13.—Two tests in the Talco area are apparently "out of the picture" so far as production is concerned from the Paluxy sand, the producing horizon found by Peveto and others (now Pleasant Oil Co.) on the Carr farm in the M. V. Delgado Survey 1½ miles east of Talco in northeast Titus County, and by Humble Oil & Refining Co. No. 1 Hughes and King, about 2½ miles west of the discovery.

Humble Oil & Refining Co. No. 1 Mary Groves, in the Ben Jones Survey, is now shut down at 4,492 feet after a Schlumberger test showed nothing encouraging. The company may carry it deeper later, but is now to drill No. 2 Mary Groves to the south of No. 1 or 990 feet from the south line and the center of the east and west lines of the Groves lease.

Another test that looks discouraging from a Paluxy sand standpoint is O'Neal (Joiner) No. 1 Lillianstern, William Canon Survey, about 4 miles southeast of the discovery. It is around 4,400 feet.

Jules Alford and others No. 1 Fry, I. P. Stern Survey, about 1½ miles south of the discovery, is drilling near 4,300 feet, or about 100 feet below the point where the discovery is producing from the Paluxy sand. It too, looks like a failure. With these three tests to the south, and one to the east of the discovery, appearing as dry holes, geologists may be forced to change their opinions as to which direction the fault runs. Acreage north of a line drawn due east of the discovery, may be more important, or until proven otherwise. The majority of company geologists have held the fault ran due east, some thinking another fault cut to the southeast about 6 or 8 miles east of the discovery. This theory now seems obsolete.

O'Neal Trustee No. 1 O. C. Lillianstern in William Canon Survey, 4 miles southeast of Talco discovery in northeast Titus County, showed saturation in cuttings at 4,385 feet, but in making three other cores to 4,455 feet showed nothing further. Casing is to be set and a test made of the saturated streak. Elevation is 302 feet.

Manning and others No. 1 Hocker and Hughes, M.E.&P. Survey, about 9 miles northeast of the Talco discovery, but over in Red River County, will be an important test as it is north of where the fault zone was supposed to be. This test has been spudded and is to go to the Glen Rose lime. The geological information gained will be of importance.

Earl Calloway of San Antonio has made location for a Paluxy sand test on a four-acre tract owned by W. T. Sullivan, in the I. P. Stern Survey, Titus County. Lucey Petroleum Co. of Dallas has made location for a similar test on the M. Hazelwood 4.25 acres tract in the M. V. Delgado Survey; Sutton and Hawkins have made location in the center of a 2.1-acre tract in the Talco Townsite and John De Grazier of Texarkana, has also made location in the Talco Townsite, in Lot 3, Block 20, A. P. Kelley Survey, for a Paluxy sand test. Other tests are expected within the next few weeks.

Humble Oil & Refining Co. and Windsor No. 1 Hughes and King, in the Orlando James Survey, 2½ miles southwest of the Talco discovery, but over in Franklin County, flowed 351 bbls. in 24 hours through a one-fourth inch choke on tubing, with 85 pounds working pressure on the tubing and 70 pounds shut in casing pressure. This new gauge shows the producing capacity of the well to have been increasing, flowing only 150 bbls. of oil in seven hours through 1-inch choke on tubing when tested a couple of weeks ago. Total depth is 4,197 feet. This second well, which extended production 2½ miles, is giving the new pool a better appearance than the discovery, which is only a pumper, making 551 bbls. per day on its first 24 hour pumping test.

The oil is of low gravity, around 27.5 at 80 degrees, but is said to have a high lube content. Oil from the discovery well is being shipped out by tankcar from a loading rack on the Paris and Mt. Pleasant Railroad at Talco.

Other Tests

D. Hager and Forester and others No. 1 J. F. Woodward, in a survey by the same name as fee owner, 1 mile east of Minter, in Lamar County, is drilling below 4,110 feet after logging top of anhydrite at 3,735 feet, massive anhydrite at 3,990 feet and base of same at 4,085 feet. Lamar is adjacent to, and northeast of Titus County.

North Texas Syndicate Co. has made tentative location on the A. K. Haynes farm in the A. W. Wright Survey, 4½ miles northeast of Garrett's Bluff in Lamar County, and proposes to drill two other tests in this county.

Off and others No. 1 Kurth Lumber Co., Elizabeth Smith Survey, near the center of Red River County, logged the Georgetown lime this week at 600 feet and is drilling below 750 feet.

To the southeast of Titus County, Sultana Oil & Refining Co. has blocked some 4,000 acres northwest of Redwater in Bowie County and will probably drill a Paluxy sand test. Superior Oil Co. has also been purchasing leases in this county, taking all of the land in the J. P. McFit No. 107 Survey southwest of Bassett.

Lester and Duffield of Dallas plan to drill in the center of the L. D. Polk 20-acre farm in the northeast part of the J. D. Taylor Survey, in the northeast part of Kaufman County.

Charles Richards is getting ready to drill a 4,500-foot test on a 4,000-acre block centering in the northeast corner of the C. Quillen Survey, one-half mile northeast of Collinsville in Grayson County. Tentative location has been made in the Forrester farm.

There were three wildcats abandoned during the week, Falls County one and Navarro County two.

There are now 80 tests going down or preparing in wildcat territory in the East Texas district. There are 265 drilling or preparing to drill in the East Texas field alone, making a total of 345 activities.

Peveto and others are rigging up a wildcat on the C. R. Kelley farm in the northwest corner of the Jose Pineda Survey, 3 miles north of Jacksonville in Cherokee County.

Gas Showing

Pure Oil Co.'s interesting wildcat on the Faulkner lands in the W. Elliott Survey, about 5 miles east of Mount Enterprise in southeast Rusk County, topped the Pecan Gap chalk at 2,650 feet with a surface elevation, later picking up a small gas showing after going through this chalk. The showing was of little consequence, but this test is on a large block on which the company has been working for four or five years. The test is to go to 8,500 feet in search of Trinity sand production.

Farrier and others are assembling a block of 3,000 acres centering in the Ulysses Acquire Survey, 7 miles north of Annona in Red River County.

Companies and operators are now carrying on a quiet leasing and royalty buying program along the fault zone through Titus, Hunt, Hopkins, south through Kaufman and into Navarro and Limestone Counties since the Talco pool has been proven. The discovery, coupled with the Rodessa extensions in Cass County, has caused renewed interest in the East Texas district, resulting in a larger number of wildcats being drilled, especially on the eastern rim of the state and in the northeastern counties.

On April 10 there were 20,208 wells in the field with 53 reported dead. Daily allowable production was 441,958 bbls. with a potential of 12,471,007 bbls. There were 55 tests completed this week, only two dry. Seven locations were rigging up and there were 48 derricks up for tests, with 134 drilling. The total number of activities in the field was 265. There were 42 locations staked this week for new tests.

East Texas Field Completions

Gregg County

Arkansas Fuel Oil Co. No. 8-A Lee, 3,544-3,569 feet, 22 bbls. in 15 minutes. Atlantic Oil Producing Co. No. 22 Duncan, 3,620-3,682 feet, 120 bbls. per hour; No. 23 Duncan, 3,614-3,680 feet, 120 bbls. per hour. Gulf Oil Corp. No. 5 Anderson, 3,464-3,494 feet, 80 bbls. per hour. Humble Oil & Refining Co. No. 24 Armstrong, 3,565-3,692 feet, 63 bbls. per hour. Killingsworth No. 2 Field School District, 3,589-3,590 feet, 20 bbls. in 15 minutes. Magnolia Petroleum Co. No. 4 Walker, 3,640-3,660 feet, 75 bbls. per hour.

Simmons No. 3 Red Bird Addition, 3,570-3,571 feet, 35 bbls. in 30 minutes. Tide Water and Russ No. 18 Flewellen, 3,680-3,698 feet, 8 bbls. in 10 minutes. Stanolind Oil & Gas Co. No. 6 Castleberry, 3,578-3,604 feet, 10 bbls. in 15 minutes; No. 13 Fenton, 3,593-3,624 feet, 15 bbls. in 15 minutes; No. 5-A Jones, 3,585-3,675 feet, 19 bbls. in 15 minutes.

Stanolind and others No. 17-C Flewellen 3,649-3,681 feet, 15 bbls. in 15 minutes. Texas Co. No. 12 Wood, 3,562-3,604 feet, 60 bbls. per hour. Tide Water Oil Co. No. 17 Castleberry, 3,592-3,610 feet, 10 bbls. in 10 minutes; No. 17 Shepherd, 3,579-3,598 feet, 143 bbls. per hour.

United East & West Oil Co. No. 1-A Walker, 3,590-3,593 feet, 28 bbls. in 30 minutes. Arkansas Fuel Oil Co. No. 35 Hughey and Ross, 3,515-3,540 feet, 18 bbls. in 15 minutes. Alladin Oil Co. No. 4 Dansby, 3,733-3,734 feet, 20 bbls. in two hours on pump. Constantine Refining Co. No. 2 Utzman, 3,499-3,518 feet, 10 bbls. per hour on pump. Gulf Oil Corp. No. 18 Still, 3,532-3,592 feet, 30 bbls. per hour. Humble Oil & Refining Co. No. 72-B Laird, 3,562-3,629 feet, 50 bbls. per hour; No. 79-B Laird, 3,516-3,607 feet, 30 bbls. per hour.

Humphries No. 6-A Crews, 3,629-3,633 feet, dry and abandoned. Kimberlin and Howse No. 2-B King, 3,437-3,440 feet, 45 bbls. per hour; No. 2 Reynolds, 3,441-3,443 feet, 45 bbls. per hour. McVey No. 4 Richards, 3,454-3,478 feet, 43 bbls. in three hours on air lift. Rajo-Mercury No. 9 McComic, 3,748-3,749 feet, 26 bbls. per hour.

Shell Petroleum Corp. No. 36 Elder, 3,537-3,557 feet, 31 bbls. per hour. Sinclair Prairie Oil Co. No. 29 Andrews, 3,458-3,490 feet, 33 bbls. in 30 minutes. Sun Oil Co. No. 22 Hilburn, 3,658-3,669 feet, 54 bbls. per hour on three-fourths inch choke. Texas Co. No. 13 Walker, 3,580-3,582 feet, 30 bbls. per hour.

Cherokee County

Texas-Canadian Oil Co. No. 2-B Kelley, 3,695-3,696 feet, 60 bbls. per hour.

Rusk County

Champlin and Bass No. 6 Roberson, 3,567-3,596 feet, 80 bbls. in six hours on swab. Humble Oil & Re-

fining Co. No. 37 Peterson, 3,608-3,625 feet, 25 bbls. in 15 minutes. Hurtle Oil Co. No. 11 Sexton, 3,616-3,643 feet, 35 bbls. per hour; No. 14 Sexton, 3,582-3,606 feet, 30 bbls. per hour; No. 17-B William, 3,625-3,660 feet, 30 bbls. per hour on pump, shot with 60 quarts.

King and others No. 3 Florey, 3,-661-3,662 feet, 20 bbls. per hour. Tide Water Oil Co. No. 13-B Bean, 3,555-3,605 feet, 5 bbls. in five minutes. Arkansas Fuel Oil Co. No. 14 Ferguson, 3,647-3,673 feet, 25 bbls. in 15 minutes. Atlantic Oil Producing Co. No. 13-D Pinkston, 3,603-3,652 feet, 50 bbls. per hour. Theron Oil Co. No. 2 Neal, 3,605-3,662 feet, 22 bbls. in 10 hours on pump. Farrell Drilling Co. No. 3 Hammett, 3,624-3,636 feet, 21 bbls. per hour. Humble Oil & Refining Co. No. 13 Sneed, 3,669-3,669 feet, 27 bbls. in 20 minutes.

Londo Oil Co. No. 2 Conningham and Hamilton, 3,745-3,810 feet, 27 bbls. in 45 minutes. Marathon Oil Co. No. 36 Moore, 3,662-3,708 feet, 40 bbls. per hour. Roosth and Genecov No. 2 Hammett, 3,650-3,651 feet, 71 bbls. in four hours on pump, 20 per cent water. Sinclair Prairie Oil Co. No. 69 Kinney, 3,642-3,650 feet, 26 bbls. in 15 minutes.

Spandsco Oil Co. No. 10 Brett, 3,699-3,721 feet, 75 bbls. per hour. Stanolind Oil & Gas Co. No. 8-B Schuler, 3,647-3,672 feet, 27 bbls. per hour. Sun Oil Co. No. 8-B Schuler, 3,607-3,643 feet, 21 bbls. per hour. Sutton and Hawkins, 3,599-3,710 feet, 200 bbls. in 48 hours, swabbing.

Smith County

Centex Oil Corp. No. 2-B Pace, 3,759-3,760 feet, 20 bbls. in 30 minutes through 1-inch choke. Medlin No. 4 Mayfield, 3,810-3,811 feet, 50 bbls. per hour. Sun Oil Co. No. 3 Lanham, 3,817-3,818 feet, dry and abandoned.

Upshur County

Bell No. 1 Moore, 3,727-3,733 feet, 20 bbls. per hour on pump. Conservative Oil Co. No. 13 Mackey, 3,691-3,702 feet, 20 bbls. in 45 minutes. Fields No. 5 Walker, 3,643-3,650 feet, 20 bbls. in 15 minutes. Humble Oil & Refining Co. No. 9 Mattox, 3,676-3,688 feet, 40 bbls. per hour.

Jones and Shelburne No. 4 Victory, 3,701-3,702 feet, 20 bbls. per hour on swab. Phillips No. 4 Victory, 3,613-3,615 feet, 20 bbls. in 20 minutes. Rogers Brothers and others No. 1 Evers, 3,835-3,837 feet, 20 bbls. in four hours, 40 per cent water. Southland and others No. 19 O'Byrne, 3,701-3,708 feet, 50 bbls. per hour. Stanolind and Falcon No. 2-A Williams, total depth 3,766 feet, plugged back to 3,640 feet, 20 bbls. in 18 minutes.

MISCELLANEOUS EAST TEXAS COMPLETIONS

Falls County

G. W. Langley No. 1 A. Springfield, dry and abandoned at 2,020 feet, 3 miles northeast of Bremond.

Franklin County

Humble Oil & Refining Co. No. 1 King & Hughes, total depth 4,197 feet, 352 bbls. in 24 hours through one-quarter inch choke; flowing pressure on tubing 62 pounds, elevation 362 feet.

Freestone County

Tide Water and Seaboard Oil Corps. No. 1 Johnston, total depth 5,308 feet, 111 bbls. in 24 hours through one-eighth inch choke.

Navarro County

Reiter and others No. 1 Bounds, dry and abandoned 3,655 feet near Wortham. Thomason No. 1 Estes Bros., dry and abandoned 2,870 feet; elevation 427 feet.

Titus County

Pleasant Oil Co. No. 1 Carr, total depth 4,208 feet, 552 bbls. in 24 hours on pump; pumping 18 strokes per minute; elevation 370 feet.

Van Zandt County

Pure Oil Co. No. 5 Enas, total depth 2,985 feet, 50 bbls. per day on pump, 60 per cent fresh water; No. 4 Gilbert, total depth 2,956 feet, 10 bbls. in 24 hours on pump.

East Texas Field

Gregg County

Arkansas Fuel Oil Co. No. 12-B McKinley, 3,553-3,578 feet, 21 bbls. in 15 minutes; No. 9-A Smith, total depth 3,524 feet, 21 bbls. in 15 minutes; No. 10 Tuttle, 3,574-3,579 feet, 24 bbls. in 15 minutes. Atlantic Oil Producing Co. No. 13 Bander, 3,604-3,675 feet, 124 bbls. per hour; No. 15 Wilson, 3,534-3,600 feet, 118 bbls. per hour.

L. G. & S. Oil Co. No. 8 McQueen, 3,563-3,575 feet, 100 bbls. per hour. Long No. 11-A Owen, 3,561-3,576 feet, 60 bbls. per hour. Phillips No. 5 Brooks, 3,585-3,590 feet, 30 bbls. in 30 minutes. Tide Water and Stanolind No. 42-B Flewellen, 3,667-3,777 feet, 13 bbls. in 10 minutes. Stanolind Oil & Gas Co. No. 9 Lee, 3,586-3,599 feet, 16 bbls. in 15 minutes. Callender No. 11 Walker, 3,578-3,579 feet, 15 bbls. in 45 minutes.

Hamilton and Ellis No. 13 Utzman, 3,445-3,465 feet, 40 bbls. per hour, pumping. Killam & Solley No. 1 Thomas, 3,696-3,697 feet, 10 bbls. per hour. Kimberlin & Howze No. 2-A King, 3,440-3,464 feet, 48 bbls. in 90 minutes. Lee & Williams No. 2-A Carter, 3,582-3,586 feet, 10 bbls. in 15 minutes. McVey No. 3 Richards, 3,-475-3,487 feet, 10 bbls. in 30 minutes on air lift. Midfield Oil & Gas Co. No. 4 Samples, 3,730-3,732 feet, 20 bbls. in 30 minutes.

Rushwold Oil Co. No. 1 Cole, 3,-679-3,682 feet, 50 bbls. per hour on pump. Sinclair Prairie Oil Co. No. 23 Andrews, 3,448-3,480 feet, 16 bbls. in 15 minutes. Tide Water Oil Co. No. 27 Barton, 3,586-3,600 feet, 20 bbls. in 10 minutes. Welch and Sandler No. 11 Barnett, 3,702-3,706 feet, 40 bbls. in two hours on pump. Wynee No. 8 Sabine River tract, 3,420-3,433 feet, 180 bbls. in two and one-half hours on swab.

Rusk County

Humble Oil & Refining Co. No. 80-B Laird, 3,493-3,550 feet, 13 bbls. per hour on gas lift. Hurtle Oil Co. No. 8-B Sexton, 3,565-3,583 feet, 45 bbls. per hour; No. 8 Sexton, 3,634-3,652 feet, 20 bbls. in 30 minutes. Kirby Petroleum Co. No. 15 Reddic, 3,640-3,747 feet, 45 bbls. per hour.

Natural Petroleum Co. No. 3 Henderson, 3,595-3,615 feet, 8 bbls. per hour on pump. Royall Petroleum Co. No. 1 Leath, 3,505-3,578 feet, 5 bbls. in 24 hours on pump. Atlantic Oil Producing Co. No. 39 Kinney, 3,567-3,637 feet, 38 bbls. per hour. Dearing & Son No. 7 Kinney, 3,567-3,637 feet, 38 bbls. per hour.

Royall Petroleum Co. No. 1 Propes, 3,506-3,507 feete, 20 bbls. in five and one-half hours on pump. Humble Oil & Refining Co. No. 7-C Silvey, 3,740-3,765 feet, 26 bbls. in 20 minutes. Danco Oil Corp. No. 1 Frederick, 3,570-3,612 feet, 20 bbls. in three hours on pump. Retsal Drilling Co. No. 1 Coates, 3,558-3,597 feete, 94 bbls. in three hours on swab; No. 24 Maxwell, 3,614-3,682 feet, 75 bbls. per day on pump. Slaughter and Kugle No. 3 Frederick, 3,597-3,633 feet, 25 bbls. per hour on swab. Tide Water Oil Co. No. 9 Finney, 3,658-3,707 feet, 10 bbls. in 15 minutes; No. 10 Irion, 3,640-3,676 feet, 17 bbls. in 15 minutes.

Cherokee County

Texas-Canadian Oil Co. No. 2 Keel, 3,670-3,671 feet, 85 bbls. in 90 minutes; No. 3 Keel, 3,658-3,676 feet, 50 bbls. in six hours on pump.

Smith County

American Trading & Producing Corp. No. 10 Cook, 3,713-3,716 feet, 75 bbls. per hour through 1-inch choke. McCutchin No. 5 Jarvis, 3,745-3,746 feet, 40 bbls. per hour. Medlin No. 5 Mayfield Co. 3,819-3,820 feet, 90 bbls. in two hours. Salisbury No. 1 Salem School Lot, 3,744-3,745 feet, 24 bbls. per hour on pump. Sun Oil Co. No. 24 Henson, 3,647-3,651 feet, 20 bbls. in 30 minutes; No. 2 Lanham, 3,852-3,853 feet, 20 bbls. in 30 minutes. Texas Canadian Oil Co. No. 8 Pace, 3,771-3,790 feet, 30 bbls. in 30 minutes.

Upshur County

Barnett No. 7-A Bradshaw, total depth 3,755 feet, plugged back to 3,-704 feet, 20 bbls. per hour on pump, 5 per cent water. Fields No. 7 Walker, 3,688-3,693 feet, 20 bbls. in 10 minutes. Johnson No. 2 Callahan, 3,678-3,685 feet, 10 bbls. in 20 minutes on pump; No. 1 Moore, dry and abandoned 3,762 feet.

Manziel No. 4 Mackey, 3,745-3,747 feet, 40 bbls. per hour. Rutledge & Boller No. 2 Todd, 3,628-3,706 feet, junked and abandoned. Southland and others No. 20 O'Byrne, 3,695-3,-697 feet, 100 bbls. per hour. Stanolind and Falcon Oil Co. No. 1-E Everett, dry and abandoned, 3,647 feet.

H. B. Simcox, division manager for the Continental Oil Company, Fort Worth, Tex., is back in his office after several days' illness.

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Texas and Louisiana Gulf

NEW FIELD AT COTTON LAKE; OIL IN DICKINSON EXTENSION

By F. L. SINGLETON

HOUSTON, Tex., April 13.—Indications of a new field being opened on the Cotton Lake prospect in northern Chambers County, together with the completion of the first oil producer in the south extension area of the Dickinson field in Galveston County, and the completion of the first oil well in the Marginulina sand which extended the Anahuac field in Chambers County a half a mile east, were the featured developments along the Gulf Coast the past week.

Salt Dome Oil Corp. and Gem Oil Corp. No. 2 A. B. Lawrence, three-quarters of a mile southwest of a dry hole drilled by the company on the Cotton Lake prospect, northern Chambers County, seemed certain of opening the third oil field around the edges of Galveston Bay when it tested 750 feet of 38 gravity oil on an eight minute drill stem test from a corrected depth of 6,652-61 feet, the total depth. The test was made through one-quarter inch chokes on top and bottom and showed 125 pounds of pressure with no salt water. Seven-inch casing has been cemented at 6,647 feet and a production test is scheduled to be made during the week.

The well topped the Marginulina sand at 6,440 feet and encountered the sand at 6,652 feet which is thought to be in the top of the Frio that is found at Turtle Bay and Anahuac at around 6,500 and 7,000 feet respectively.

No. 2 A. B. Lawrence is three-quarters of a mile southeast of No. 1 Lawrence abandoned at 7,005 feet. Several sands showing oil and gas were encountered, one at 5,471-72 feet, one at 6,555-64 feet and the others at 6,631-35 and 6,769-74 feet. Prior to the drilling of the first test, this area was the scene of most extensive leasing campaign witnessed since the play at Tomball and Splendora that has resulted in the acreage being divided among Gulf Oil Corp., Shell Petroleum Corp., Stanolind Oil & Gas Co., Humble Oil & Refining Co. and Fohs Oil Co., which will probably mean a most active drilling campaign, as most of the acreage is checkerboarded throughout the entire prospect.

The Cotton Lake prospect centers around the Solomon Barrow and James Grant Survey and is 10 miles northwest of the Goose Creek field, Harris County, about 5 miles southwest of Turtle Bay, 7 miles southeast of Barbers Hill and about 15 miles west of the Anahuac field. It takes in a sizeable area embracing marshes along the north shore of Galveston Bay and extending out into the bay proper.

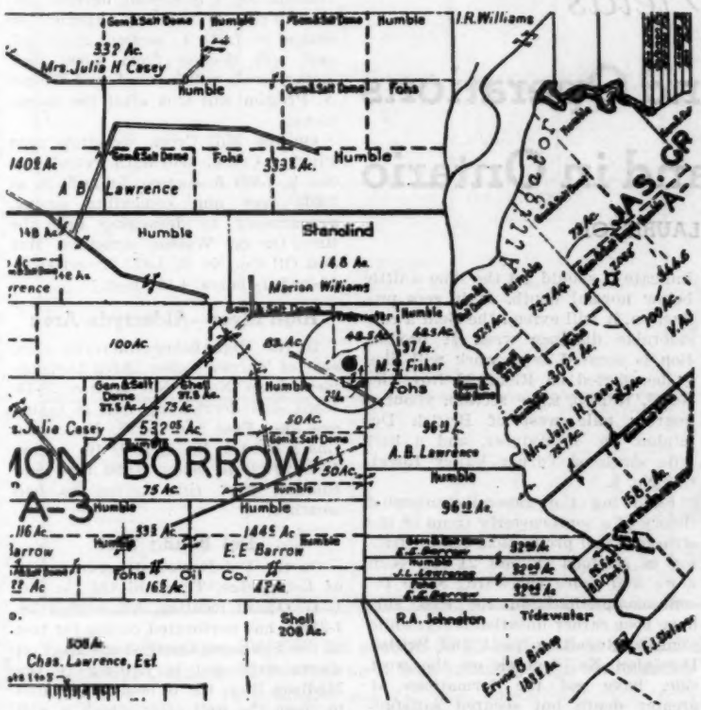
Dickinson

The south extension area of the Dickinson field in Galveston County received its first oil production by completion of Coast Petroleum Corp. No. 3 Maco Stewart for an initial production of 600 bbls. per day through a quarter-inch choke with tubing and casing pressure equalized at 1,150 pounds. The oil tested 38 degrees at a temperature of 74 degrees. Production is from the Frio sand bottomed at 8,565 feet tested through perforated casing from 8,535-45 feet. The well is about 3,000 feet southeast of the Dickinson field proper and east of two large distillate producers completed by the company at the approximate depth of 8,500 feet. It is understood the company has made location for a fourth test just south of the first well.

There are many different opinions as to whether this area is an extension or a separate pool, but the majority are of the opinion the two areas are separated by faults or grabens and production will be spotted. The oil well is 660 feet east of No. 1 and 10,800 feet north of the south line of the W. K. Wilson Survey.

Anahuac

Humble Oil & Refining Co. No. 1 Lord, a half mile east of production at the Anahuac field in Chambers County, which last week cored salt water sand in the Frio sand, the producing horizon, at 7,211 feet, was plugged back from 7,231 feet to the Marginulina sand at 7,067 feet, and with 7-inch casing cemented at 7,046 feet it was completed for an initial production of 26 bbls. per hour through a quarter-inch choke. This apparently means a large majority of the edge acreage heretofore thought condemned will be proven productive. Another well apparently on the edge of the structure is being completed in the same sand. It is No. 1 Gripon which cored salt water sand at 7,226 feet and was plugged back to 7,076 feet, and is preparing to test after 7-inch casing was cemented at 7,042 feet. Discorbis was topped at 6,072 feet, Heterostegina 6,406 feet, Marginulina 6,770 feet and the Frio at 7,226 feet. It is in section 51, H.&T.C. Survey.



Map shows location of Salt Dome Oil Corp. No. 2 Lawrence

(Map courtesy of W. W. Zingery)

Colorado County

Sterling Oil & Refining Co. No. 2-B Powell, in the Garwood area, southern Colorado County, was tested in a sidetracked hole at 5,920 feet and was completed for a gas well with a slight spray of oil and salt water through a one-sixteenth and five-sixteenths inch choke with tubing pressure 1,300 pounds and casing pressure 975 pounds. This is the third production test made and it is producing from the Cockfield sand topped in the sidetracked hole at 5,917 feet. It is in the I.&G.N. Survey, section 45. G. W. Johnson No. 1 Drymalle in the T. Coleman Survey is shut down in salt water sand at 5,156 feet and may be deepened.

South Houston

Two more producers were added to the South Houston field, Harris County by completion of two wells by Stanolind Oil & Gas Co. No. 1 District 6 was completed at 4,775 feet and flowed 257 bbls. in 14 hours through a one-quarter inch choke with tubing pressure 950 pounds and casing pressure 1,300 pounds. No. 1 District 7 made 54 bbls. in 15 hours through a quarter inch choke with tubing pressure 400 pounds and casing pressure 500 pounds. It is bottomed at 4,773 feet with 7⅝-inch casing cemented at 4,598 feet.

Amelia

At the Amelia field, northern Jefferson County, Glenn H. McCarthy is swabbing No. 2 Long which is showing some oil after being swabbed down to 1,800 feet. It is bottomed at 5,423 feet and was tested through the perforated 7-inch casing set at 5,423 feet, from 5,408-18 feet. It is a short distance from No. 1 Longe completed for a distillate producer. To the southeast Humble Oil & Refining Co. has abandoned No. 1-B Broussard at 8,261 feet, and has made location for No. 1 Guinn, 826 feet south of the most northerly north line and 1,002 feet west of the most easterly east line of 164.26 acre tract in the C. Williams Survey. Same company's No. 2 R. C. Miller, north of No. 1 Miller a dry hole, has been plugged back from a depth of 7,882 feet, to 6,503 feet, sidetracked at 6,508 feet, and is drilling in the new hole below 6,797 feet.

Van Vleck

Skelly Oil Co. No. 4-B Cobb, in the Van Vleck field, Matagorda County, was drilled to 7,502 feet and when tested through perforated casing from 7,480-97 feet, flowed 52 bbls. in 16 hours through a quarter-inch choke with tubing pressure 1,600 pounds and casing pressure 2,275 pounds. It is in the Morris and Cummings Survey.

Coastal Louisiana

The most interesting news from Coastal Louisiana during the week came from the Gillis field in Calcasieu Parish where Union Sulphur Co. opened a third producing horizon when No. 1 State, an old well which formerly produced in the 6,700 foot sand, was deepened and completed for an initial production of 555 bbls. per day from a depth of 7,528 feet, about 800 feet deeper than the discovery sand found at approximately 6,700 feet. The well is on the south side of the field and is producing

from 5 feet of sand which opens possibility of additional producing life for wells in this area, should their flow from the discovery horizon decline.

Hardin

The second well drilled in the Hardin field, Liberty County, is nearing the pay as Atlantic Oil & Producing Co. No. 1 Hardy is below 7,277 feet, and should reach the pay in the Cockfield during the week. Top of the Cockfield was encountered at 7,056 feet. The discovery well is producing from a level slightly below 7,500 feet. No. 1 Hardy is 3,600 feet north of the discovery well in the J. Robeson Survey.

Tepetate

The eastern limits of the Tepetate field, Acadia Parish, were apparently defined due to the showing made by Loffland Brothers No. 1-A R. J. St. Germain in section 28-7s-2w. The Ortego sand was topped at 8,353 feet and the hole was drilled to 8,380 feet at which depth an electrical coring test showed sand from 8,353-63 feet with 5 ohms resistance and salt water sand from 8,363-80 feet. Late in the week the operators were making a directional survey.

Stanolind Oil & Gas Co. has appropriated $500,000 to be spent in reworking 75 wells in the old Spindletop field from 5 to 10 years old which have produced several million barrels of oil. The wells were acquired from the purchase of Yount-Lee Oil Co. properties last year, and recently new production was developed in one of the wells by deepening to a sand at 3,300 feet.

Lafitte

At the Lafitte field, Jefferson Parish, Texas Co. is preparing to test No. 3 Rigolet after cementing 7⅝-inch casing at 9,396 feet, in oil sand topped at 9,395 feet and bottomed at 9,455 feet. This will be the sixth well to be completed below 9,400 feet. It is in section 30-17s-24e.

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, Apr. 11.—On the Jumping Pound structure west of Calgary, Northwest Co. No. 1, LSD 6, section 31-24-4w5, has spudded and is below 50 feet on a test of shallow oil horizons around 700 and 1,068 feet. Northwest Co. No. 2, LSD 2, same section, is rigging. The company is a production subsidiary of Imperial Oil, Ltd. whose No. 2 Bow River deep test in this area some years ago got encouraging shows of crude at these depths. This is the first drilling undertaken by Imperial Oil, Ltd., outside Turner Valley in several years.

North Turner Valley

In North Turner Valley, Royalite Oil Co. No. 27, LSD 4, section 23-20-3w5, is testing production from the Madison limestone at 5,570 feet. It is 385 feet in the lime with only a little wet gas and naphtha.

South Turner Valley

In section 28-18-2w5, South Turner Valley, Renfrew Royalties No. 1 Morris & Goodfellow, LSD 3, is cleaning out caving preparatory to deepening in the lime from 6,020 feet. It is 15 feet in the lime and develops heads of gas and naphtha with strong pressure when shut in. The location is on the west side of the structure south of British Dominion Oil & Development Corp. No. 4 producer.

In the northwest corner, same section, Turner Valley Royalties No. 1, LSD 13, rotary test is below 5,300 feet. It is farther west than any producer drilled in section 28 and after drilling to 3,055 feet work was discontinued in the belief it was too far down the dip of the structure. British-American Oil Co. is assisting completion of the test, and recent markers indicate it should get the lime a little below normal depth. If it gets production, it will extend the field a considerable distance west. If production is secured here, work will likely be started on Richfield Royalties No. 1, LSD 5, same section, about a quarter mile west of British Dominion No. 4 producer, and a half mile south of Turner Valley Royalties No. 1.

Following the generally accepted theory of a southeasterly trend of the structure and production, recent drilling in sections 28 and 21 has been more and more eastward. Some recent completions on the east side have been rather unsatisfactory, while Century Royalties No. 1 and British Dominion No. 4, both on the west side, have got the formations at greater depth but secured satisfactory production. These results are likely to divert attention to the west side.

Farther south, in section 21-18-2w5, Highwood-Sarcee Oils No. 2, LSD 1, is below 3,400 feet, the most southerly active location in South Turner Valley, although farther southwest Century Royalties No. 2 has been spotted in LSD 15, section 16-18-2w5.

Deep Test Pulls Casing

On the east side of the Central Turner Valley field, derrick has been erected at Great West Oils No. 1, LSD 2, section 7-20-2w5, and casing is being pulled. This test, drilled about 1927, was located about a half mile west of Royalite Oil Co. No. 4 gusher. It was too far east and after drilling in the Benton formation more than 5,000 feet it faulted back to post-Benton and was abandoned at 5,400 feet. Casing is being moved to Maple Leaf Royalties No. 1 Banner on the Highwood-Sinclair structure, LSD 6, section 34-17-3w5, which is resuming from 2,597 feet after the winter shutdown.

Tests in the Foothills

In the Forest Reserve area west of Olds, Hunter Valley Oil Co. No. 1 McLaren, LSD 12, section 13-31-10w5, has resumed after cementing casing at 5,422 feet.

On the Kootenay dome west of Calgary, Roxana Petroleum No. 1, section 8-24-7w5, will likely spud in May. Standard tools will be moved to location as soon as a road can be cut through. The company has opened a branch office in Vancouver in charge of J. C. Dallas. It is 7 miles from the main line of the C.P.R. and the producing horizon on the Paleozoic lime is looked for around 1,500 feet.

On the Rickert structure west of Turner Valley, Paramount Oils No. 1, LSD 2, section 28-19-4w5, is below 5,475 feet. This structure is about 10 to 12 miles west of the Home wells in the older section of South Turner Valley. It was mapped some years ago by Julius Rickert, and the Paramount test is the only drilling so far undertaken in an extensive area.

In the De Winton area, Wales Petroleum No. 1 is moving derrick timbers to the old Anglesey-Lakeview location in LSD 1, section 22-21-1w5, and will deepen from 4,500 feet. Rotary tools will be used, and Walter A. Preston will look after the operations.

On the Mill Creek structure near Pincher Creek, Weymarn Petroleums No. 2, LSD 5, section 7-6-1w5, is at 5,665 feet and cementing casing, preparatory to deepening into the lime. On the Watson structure, Mar Jon Oil Co. No. 3, LSD 3, section 4-10-2w5, is below 4,111 feet.

High River—Aldersyde Area

In the High River-Aldersyde area, east of Turner Valley, Arca Development Corp. No. 1, NW section 28-14-12w5, has derrick up and is laying gas line. East and north, Ranchmen Gas & Oil Co. No. 1, LSD 16, section 13-20-29w4, is below 6,696 feet, and running part time owing to bad weather.

Del Bonita Test

On the Del Bonita structure south of Lethbridge, Terminal Oil Co. No. 1, H. Orcutt location, NE section 18-1-21w4, has perforated casing for test of the Sunburst sand, where good oil shows were met in drilling to the Madison lime. Oil is being circulated to clean the well after which it will be swabbed.

Oyen Gas Prospect

The exploration permit secured by the Canadian Western Natural Gas, Light, Heat & Power Co. in the Oyen district of eastern Alberta covers 64,960 acres north of the Acadia Valley, where a deep test drilled some years ago by Fuego Oils, Ltd., encountered oil and gas shows. The Canadian Western company, according to a recent statement of H. R. Milner, president and general manager, is not interested in oil production but hopes to develop a new gas reserve, no new fields having been opened near its transmission lines since the development of Foremost and Turner Valley fields in 1924. Considerable geological and geophysical work will be done in the Oyen district before actual drilling is undertaken. The area is such there is little surface geology to aid investigation. Systematic subsurface work will be undertaken, and particular attention will be given to the geophysical appliances best suited to meet the conditions as determined by geological investigation. The Fuego test indicated gas in six horizons between 887 and 3,133 feet including two shows in the top of the Paleozoic limestone.

Wainwright Deep Test

In the Wainwright field, east-central Alberta, Montreal-Alberta Oils No. 1, LSD 2, section 15-45-7w4, has resumed from 2,885 feet where drilling was suspended in 1933. It will be continued for a thorough test of the Paleozoic limestone which was encountered at 2,321 feet. Some oil shows were previously indicated in cores from the lower Cretaceous but production was not definitely tested. Imperial Oils No. 1 Grattan, LSD 16, section 18-45-7w4, in the same general area got some small oil shows in the upper Paleozoic but no test in the Wainwright field has ever been carried to a conclusive depth in the lime. S. Wilson is in charge of the drilling.

Saskatchewan Indian Reserve

Plans are being discussed for drilling on the Sweetgrass Indian Reservation in western Saskatchewan, some 12 miles west of Battleford. Considerable acreage has been staked in the Eagle Hill area and some tentative locations have been made outside the Indian Reserve; but drilling on the reserve itself is subject to approval of the Indians who have sent one of their chiefs, John Tootoosis, to Ottawa to confer with officials of the federal Indian department with a view to safeguarding their interests.

The potential field is on the line of the proposed transmission line from the Lloydminster field to North Battleford and Saskatoon but considerably nearer these potential natural gas markets. The area was extensively geologized last year and early reports indicate good prospects of natural gas with possibilities of oil in favorably located structures.

Rainy River Development

A new potential oil area in northern Ontario and eastern Manitoba will be tested this year by the Lake of the Woods Oil Co. in the Rainy River district. W. Verville, vice president of the company, visited Hudson recently in connection with the proposed drilling. The company is planning to drill on the Moir and Cyr properties about 5 miles north of Rainy River. Work is expected to start this spring. Oil seepages on the Rainy River were first discovered about 1906 and several attempts were made to secure development. In 1926 the Pine River Development Co. was formed to develop acreage about a mile north of Hudson. Three shallow tests drilled 20 feet apart encountered considerable oil, but the holes filled with water. The Pine River company is inactive at present but the Lake of the Woods Oil Co. has leased 20,000 acres north, west and east of the town of Rainy River and is arranging for systematic development this season. Shallow production is looked for.

Newfoundland Oil

Development of potential oil resources of Newfoundland will be undertaken this year by British and Canadian interests. The most promising oil prospect is in the Parsons

Continued on Page 198)

Oklahoma Operations

By
DAL DALRYMPLE

SECOND DEEP TEST BEGUN AT FOX; FITTS POOL IS EXTENDED

The twentieth producer in the Capitol extension area of the Oklahoma City field was completed as the week ended and several scores of new tests were drilling or rapidly being started, while officials and citizens in mass meetings debated the pros and cons of extending the drilling zone to include all of the east side of the city. Governor Marland and the State Board of Affairs added to the drama Saturday by awarding oil and gas leases on 17 tracts of state land near the capitol to the Sunray Oil Co. and one state tract to the Anderson-Prichard Oil Corp. So intense was the interest in the developments at Oklahoma City, that other interesting activities in the state fields were overshadowed.

The newest completion at Oklahoma City is the British-American Oil Co. and Midway Oil Co. No. 2 Piersol, SE SE SE section 22-12-3w. It was given a potential rating of 25,031 bbls. of oil daily, with gas measuring 27,000,000 feet daily. Two important tests were being watched as they neared the deep pay. Barnsdall Oil Co. and Fairfax Oil Co. No. 6 Bracht, Block 16, Fairfax addition, on the extreme east edge of the extension area, was checking low. It topped Wilcox sand at 6,415 feet and was reaming down. Barnsdall Oil Co. No. 1 Banks-Geyer, just north of the city limits, was drilling below 5,640 feet after penetrating Checkerboard lime from 5,395 to 5,470 feet. It will extend the Capitol area to the north if a producer.

Work started at the second deep test in the Fox field of Carter County. Gulf Oil Corp. No. 8 Johnson, C SW SW section 28-2s-3w, had rigged up and started drilling in quest of the pay at around 8,100 feet. The first deep test in the area, Carter Oil Co. and others No. 1 Ruth Williams, SW NE SW section 27-2s-3w, continued to flow about 2,000 bbls. of oil daily during the week. In the last 24 hours it flowed 1,868 bbls. of oil, with gas gauging about 15,500,000 feet daily. Leasing and royalty play has increased in southern Oklahoma as a result of the strike at Fox.

Blackstock & Deaner No. 1 Moody, NE cor. section 27-2-7, proved the northeast extension of the Fitts field of Pontotoc County at the week end. It flowed 1,064 bbls. of oil in 1 hour and 55 minutes when opened after acidizing with 10,000 gallons. It previously had been acidized with 5,000 gallons and produced 407 bbls. in three hours. Production was from Bromide, topped at 4,270 feet. It extends Fitts field three-eighths of a mile to the northeast.

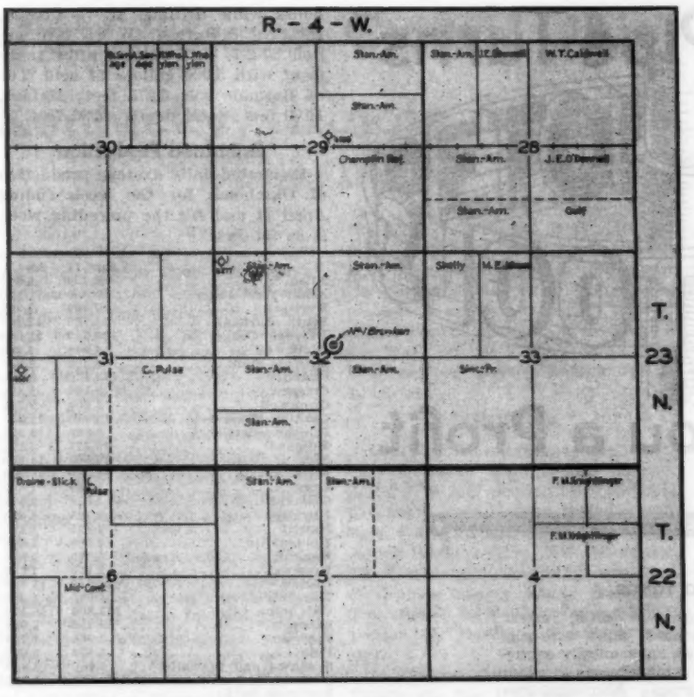
Oklahoma County

There was only one official completion in the Oklahoma City area the past week, although several tests in the Capitol extension area were in the big pay. The completion was the British-American Oil Co. No. 1 Hayes-Hyland, SE NE SE section 22-12-3w. Best pay was found at 6,355 feet; second Wilcox sand, 6,384 feet; total depth, 6,502 feet. It flowed 5,095.59 bbls. of oil in six hours. In the last four hours it produced 3,443.10 bbls., giving it a 24-hour potential of 20,659 bbls. Gas measured 17,000,000 feet.

In the Edmond area, Continental Oil Co. No. 6 Young, SW NE NW section 31-14-3w, was completed at 6,710 feet, total depth. It flowed 1,706.13 bbls. of oil in four hours, to establish potential of 10,237 bbls. Gas gauged 8,960,000 feet. First Wilcox sand was topped at 6,540 feet; second Wilcox, 6,625 feet. Marathon Oil Co. No. 10 Dahl, NE SE SE section 31-14-3w, was completed as a gasser after drilling to 7,309 feet, total depth, in Arbuckle lime, and plugging back to 6,405 feet. It produced 100,383,000 feet of gas in 24 hours and flowed 15 bbls. of "gasoline" in 40 minutes. Second Wilcox sand was topped at 6,304 feet; Arbuckle lime, 7,085 feet.

The following new work in Oklahoma County was reported: Helmerich & Payne No. 1 Mulvey, SW SW SW SE section 15-12-3w, rig; same operators' No. 1 Hagenmeister, SE SE NE SW section 15-12-3w, cementing cellar; Anderson-Prichard Oil Co. No. 1 Mitchell, NE SE SE SW section 15-12-3w, building rig; G. S. Simpson No. 1 Harden, SW NW SE SW section 15-12-3w, building rig; W. S. Key, Inc., No. 1 Pryer, NE NE SE SW section 15-12-3w, rig; Warsaki & Gibbons No. 1 Oklahoma Heights, SE NE SW SE section 15-12-3w, location; Champlin Refining Co. No. 1 Robertson, C E half SE NE SW section 15-12-3w, building rig; Barnsdall Oil Co. No. 1 Hopps, SE NW SW NE section 22-12-3w, waiting on cement, total depth, 22 feet; Empire Oil & Refining Co. No. 1 Rebstein, NE SW NW NE section 22-12-3w, rigging up rotary; Empire Oil & Refining Co. and Heenan & Coe No. 3-A Levy, NE SE NE NW section 22-12-3w, building rig; Springrose Drilling Co. No. 1 Dewey School, NW SW NE NE section 22-12-3w, cellar and pits; Fairfax Oil Corp. No. 1 Vaught-Hickam, SW NE SE SW section 22-12-3w, cellar; Anderson & Kerr Drilling Co. No. 1 Park-O-Tell, SE NE SE SW section 22-12-3w, cellar and rig on ground; British-American Oil Co. No. 1 Clark subdivision, NW SW SW NW section 23-12-3w, location; same operator's No. 1 Elliott Place, SW SW SW NW section 23-12-13w, location; same operator's No. 2 Hampton, NW NW NW SW section 23-12-3w, location; and K. & L. Petroleum Co. No. 1 Harn, SW NE SE NW section 27-12-3w, cellar and pits; all in the Capitol extension area of the Oklahoma City field.

Three new Oklahoma County tests also were started in the Edmond area. They are: Marathon Oil Co. No. 2 Messer, NW SW SW section 22-14-3w, location; same operator's No. 11 Dahl, NW SW SE section 31-14-3w, location; same operator's No. 2 Dahl Account 2, SE NE SW section 31-14-3w, location.



The No. 1 Brunken, SW SW NE section 32-23-4w, wildcat in Garfield County, Okla., held interest as it was running high structurally

(Mid-Continent Map Co., Tulsa, Okla.)

Pontotoc County

Seven producers were completed and two old wells were recompleted in the Fitts field of Pontotoc County. There was one other Pontotoc County completion, and one other well deepened. Skelly Oil Co. No. 7 Park College, SW NW NE section 28-2-7, flowed 608 bbls. of oil in seven hours through tubing; was acidized, flowed 400 bbls. in two hours through tubing, made potential of 3,920 bbls. and was completed. Gas measured 2,202,000 feet. Bromide was topped at 4,020 feet; McLish, 4,228 feet; total depth, 4,305 feet. Stahl Petroleum Co. No. 2 Dennis, NW NE NW section 28-2-7, topped Bromide at 4,105 feet; total depth, 4,285 feet. It flowed 84 bbls. in two hours through tubing. After acidizing, it flowed 514 bbls. gross in one hour through casing and 268 bbls. net the second hour. It made potential of 3,077.52 bbls. Gas gauged 1,326,000 feet.

E. H. Moore and others No. 1-B Wirick, SE SE SW section 29-2-7, made potential of 5,155.44 bbls. and was completed at 4,428 feet, total depth. Production was from Wilcox sand, topped at 4,380 feet. Bromide was topped at 3,830 feet; McLish, 4,050 feet. It flowed 1,085 bbls. of oil the first hour and 493 bbls. the next 30 minutes through casing. Same operator's No. 8 McKoy, SE SW SW section 28-2-7, topped Bromide at 3,850 feet; McLish, 4,080 feet; Wilcox sand, the producing horizon, at 4,394 feet; total depth, 4,407 feet. It flowed 355 bbls. in two hours. After acidizing, it made potential of 2,836 bbls. of oil, with 1,051,000 feet of gas. Same operator's No. 5 Harper, SW NW NE section 29-2-7, was completed as a Hunton lime producer, topping the formation at 3,470 feet; Sylvan shale, 3,744 feet; total depth, 3,750 feet. After acid treatment, it flowed 1,376 bbls. in 21 hours through tubing, and then in 24 hours flowed 877 bbls. Gas measured 1,648,000 feet.

Magnolia Petroleum Co. No. 2 Burris "B," NW SE NE section 28-2-7, topped Bromide at 3,990 feet; McLish, 4,230 feet; total depth, 4,270 feet. It flowed 213 bbls. the first hour through casing and 129 bbls. the next hour through tubing. After acidizing, it flowed 301 bbls. gross the first hour through casing and 150 bbls. the second hour. It made potential of 1,516 bbls., with 2,468,000 feet of gas. Clark & Cowden No. 5 Sum-

mers, NW NE NE SW second 17-2-7, had sand at 1,383 feet; total depth, 1,698 feet; pumped 30 bbls. in 24 hours and was completed. Carter Oil Co. No. 5 Richards, SW NW SE section 30-2-7, was deepened from 4,180 feet to 4,401 feet and made potential of 2,621 bbls. E. H. Moore and others No. 1 Akers, NE NW NE section 36-2-6, was plugged back from 4,394 feet to 4,318 feet, and flowed 176 bbls. on gas lift through casing the first hour, and was recompleted for old potential.

In Jesse Sector

In the Jesse area, Continental Oil Co. No. 1 McCarty, SE SE NW section 12-1-7, was deepened from 4,641 feet to 4,693 feet, and flowed 1,524 bbls. of oil in one hour and 30 minutes, and was recompleted.

Sinclair Prairie Oil Co. No. 8 Ralls, C N half NE SW section 28-5-8, in the Allen district, swabbed 20 bbls. of oil in 24 hours and was completed. Top of the sand was 805 feet; total depth, 822 feet.

New Pontotoc County work was as follows: E. H. Moore and others No. 1 Moody, NW cor. section 26-2-7, cellar; Samedan Oil Co. No. 2-B Holkum, NE SW NE section 27-2-7, cellar and pits; same operator's No. 4 Holkum, NW SE NE section 27-2-7, location; same operator's No. 5 Holkum, SW SE NE section 27-2-7, location; Magnolia Petroleum Co. No. 8 Simpson, NE cor. section 29-2-7, cellar and pits; E. H. Moore and others No. 5-A Harper, SW NW NE section 29-2-7, rig; Carter Oil Co. No. 6 J. Smith, NE cor. section 31-2-7, location; Fleetborn Oil Corp. No. 2 G. Smith, NE SE NE section 31-2-7, old well plugging back; Continental Oil Co. No. 3 McCarty, SW SE NW section 12-1-7, moving in rig; same operator's No. 3 Simpson, NW SW NE section 12-1-7, cellar; Mid-Texas Petroleum Co. No. 1 Coffen, SW SE SE section 30-5-4, building rig; W. A. Delaney and H. & M. Drilling Co. No. 3 Harreld, C NE SE section 29-5-8, location.

Blackstock & Deaner No. 1 Moody, NE cor. section 27-2-7, topped Bromide at 4,160 feet; total depth, 4,270 feet, and swabbed 75 bbls. of oil in 12 hours. After treating with 5,000 gallons of acid, it flowed 215 bbls. of oil through tubing the first hour; 105 bbls. the second hour; 85 bbls. the third hour, and 35 bbls. the next 30 minutes. Samedan Oil Co. No. 2 Holkum, NE SW NE section 27-2-7, was acidized with 5,000 gallons after flowing 85 bbls. of oil through tubing in 30 minutes. It was bottomed at 4,265 feet. Same operator's No. 2-A Holkum, twin well, produced an estimated 12,000,000 feet of gas from 1,219 feet, total depth, in sands topped at 1,135 and 1,192 feet.

Fleetborn & Simpson No. 5 Woolley, NE NE SE section 28-2-7, flowed 300 bbls. of oil in two hours through casing. Top of Bromide was 3,880 feet; McLish, 4,100 feet; Dense lime, 4,260 feet; total depth, 4,270 feet. Magnolia Petroleum Co. No. 3 Burris "B," SE NE NE section 28-2-7, flowed 247 bbls. of oil through tubing in the first two hours after acidizing and made potential of 2,004 bbls. Total depth was 4,300 feet. Fleetborn Oil Corp. No. 2 J. Norris, SW NW NE section 25-2-6, was acidized with 8,000 gallons but would not flow and operators were preparing to swab. Total depth was 4,450 feet. It previously had flowed 100 bbls. of oil in 24 hours while drilling. J. C. Crosbie, Inc., No. 3 Burris, SW SE NW section 27-2-7, was waiting after treatment with 5,000 gallons of acid. Top of Bromide was 3,975 feet; McLish, 4,180 feet; total depth, 4,290 feet.

Estimated Production

Estimated daily average production of Oklahoma for the week ending April 11 and for the preceding week is as follows:

	Barrels	
	Apr. 11	Apr. 4
Allen	6,700	6,800
Asher-West Asher	850	850
Burbank	7,300	7,300
South Burbank	14,750	13,600
Balance Osage	23,250	22,500
Blackwell	4,400	4,250
Bristow-Slick	8,200	8,050
Chandler	3,850	3,800
Crescent	5,500	5,400
Cromwell	3,600	3,575
Cushing-Shamrock	11,450	11,300
Duncan district	3,900	3,900
Edmond	13,375	5,650
Fish	10,500	11,000
Fitts	46,350	46,400
Gray	1,750	1,600
Graham	4,850	3,975
Healdton	8,825	8,825
Hewitt	4,425	4,425
Holdenville	1,100	1,125
Keokuk	5,275	3,800
Konawa	2,150	1,850
Lucien	12,750	11,250
Marshall-Lovell	1,000	1,000
Oklahoma City	153,800	150,500
Olympic	5,450	5,025
Papoose	1,050	1,100
Polo	3,650	3,600
Sasakwa and townsite	5,050	3,600
Sholem-Alechem	3,575	3,525
Seminole field:		
Bowlegs	13,475	12,400
Carr City	6,400	5,250
Earlsboro	7,575	7,650
South Earlsboro	1,100	1,025
East Earlsboro	11,325	11,125
Little River	13,475	13,000
East Little River	1,200	1,125
Maud	965	1,000
Mission	3,325	2,500
Seminole	11,475	10,525
East Seminole	1,700	1,675
Searight	4,575	5,375
Total Seminole	75,590	72,650
St. Louis-Pearson	24,325	22,975
Tatums	3,500	3,500
Tonkawa-Garber-Thomas	5,700	5,700
Wewoka	3,750	3,900
Yale-Jennings	4,075	4,050
Other pools	54,000	53,750
Total Oklahoma	549,715	527,400

Osage County

There were three completions in the South Burbank field and one in the Naval Reserve area of Osage County. Skelly Oil Co. No. 1 Smith, SE SW NW section 26-26-6, flowed 2,399 bbls. of oil in the first 24 hours and 2,189 bbls. in the second 24 hours after completing. Gas measured 2,250,000 feet daily. Bartlesville sand was encountered at 2,853-2,934 feet; total depth, 2,945 feet. This producer is a north extension of the South Burbank pool. Kewanee Oil & Gas Co. No. 6 Renald, NE NW SW section 26-26-6, had Bartlesville sand at 2,850-2,929 feet; drilled to 2,933 feet, total depth, and plugged back to 2,929 feet. It flowed 1,198 bbls. in the first 24 hours naturally, and 1,147 bbls. naturally in the next 24 hours. It was shot with 110 quarts at 2,850-2,929 feet, and flowed 2,390 bbls. in the first 24 hours. Gas measured 1,000,000 feet. Carter Oil Co. and others No. 10 F. Ducotey C-42, SW SE SE section 3-25-6, had Bartlesville sand at 2,694-2,785 feet, total depth, and flowed 595 bbls. of oil in seven hours. Potential was estimated at 1,920 bbls. Gas gauged 8,150 feet. In the Naval Reserve pool, Lewis Production Co. No. 3 Strikeaxe, SE NE NE section 20-24-7, swabbed and flowed 84 bbls. in 24 hours after a shot. Top of Bartlesville sand was 2,641 feet; total depth, 2,664 feet in sand.

New work in Osage County was as follows: Skelly Oil Co. No. 2 Smith, SW SE NW section 26-26-6, cellar and rig; Kewanee Oil & Gas Co. No. 7 Renald, NW NE SW section 26-26-6, cellar; Elm Oil Co. No. 5 Osage, shot, and was completed. J. A. Chapman No. 1 fee, SE NE NW section 1-9-8, topped the sand at 1,665 feet and was bottomed at 1,722 feet. It was shot with 60 quarts and flowed 440 bbls. in 24 hours, with a slight showing of water. Carter Oil Co. No. 1 Hampton, NE cor. section 1-9-8, encountered the sand at 1,700 feet; total depth, 1,749 feet. It was shot with 10 quarts and flowed 40 bbls. in 24 hours; shot again with 65 quarts, it flowed 165 bbls. in 15 hours, and later flowed 90 bbls. in 24 hours. Gas was estimated at 10,000,000 feet. South of the Olympic area, J. W. Fitzpatrick No. 1-A Culver, NE NW NW section 13-9-8, had Senora sand at 1,881 feet and was dry and abandoned at 1,884 feet, total depth.

New work in Hughes County was as follows: Carter Oil Co. No. 4 Hampton, SW SE NE section 1-9-8, spudded; Mid-Continent Petroleum Corp. No. 5 Hampton, SE SW NE section 1-9-8, set 10-inch casing at 64 feet and was waiting; Sinclair Prairie Oil Co. and others No. 1 Simon, SW cor. section 23-9-8, wildcat, location; George Orr and others No. 1 Morgan, NE SE SW section 6-7-9, wildcat, cellar and pits.

Mid-Continent Petroleum Corp. No. 2 Hampton, NW SW NE section 1-9-8, in the Olympic area, flowed 302 bbls. of oil in 10 hours after a 60-quart shot at 1,665-1,707 feet, total depth. Top of Senora sand was 1,665 feet.

Kay County

The only completions in Kay County were failures. Black Gold Petroleum Co. No. 1 Cooley, NE NW SW section 25-28-4, wildcat, had sand at 2,128-98 feet, and was dry and abandoned at 2,214 feet, total depth. Kansas-Oklahoma Oil Co. No. 1 Sherbon, C SW SW section 20-29-1, had a hole full of water at 1,350 feet and was dry and abandoned at 1,590 feet, total depth. Sand was had at 1,230-50 feet. No new operations were reported.

Logan County

Stanolind Oil & Gas Co., Amerada Petroleum Corp. and Eason Oil Co. No. 1 Bird (Gragg), SW SW NE section 20-18-4w, new pool opener west of the Lovell area in Logan County, was completed at 6,145 feet, total depth. It flowed 960 bbls. of oil in

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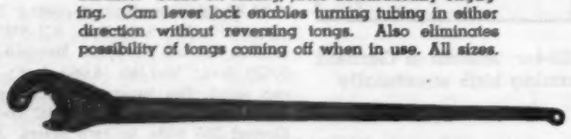

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21 hours and production was estimated at 1,045 bbls. daily. Gas measured 40,000,000 feet. Top of Viola lime was 5,835 feet; Dense, 5,860 feet; first sand, 5,992 feet.

Sinclair Prairie Oil Co. and Slick-Urschel Oil Co. No. 1 Koatsch, SW SW SW section 23-15-3w, wildcat that opened the Seward pool last year, was completed after long delay, flowing at the rate of 65 bbls. of oil per day by heads. Dolomite was topped at 6,177 feet; total depth, 6,204 feet in Simpson formation. Production was from the upper Simpson.

Phillips Petroleum Co. No. 2 Pfeiffer, C N half NW NE section 4-19-2w, in the Logan County extension of the Lucien field, made potential of 810 bbls. of oil, with gas gauging 6,000,000 feet, and was completed. It flowed 525 bbls. of oil in the first 24 hours after drilling to 5,125 feet, total depth. First Wilcox sand was topped at 4,953 feet; second Wilcox, 5,087 feet; best pay was had at 5,112-14 feet.

Two new Logan County operations were reported. Stanolind Oil & Gas Co. and Amerada Petroleum Corp. No. 1 Johnson "C," NW NW SE section 20-18-4w, was a location; same operators' No. 1 Terhune "A," SE SE NW section 20-18-4w, location.

Noble County

No tests were completed and only one new operation was reported in Noble County. Shell Petroleum Corp. and others No. 4 Moelling 26-C, SW NE SE section 17-20-2w, was a cellar.

Payne County

Amerada Petroleum Corp. and others have made locations for a new test in the Stillwater area of Payne County. It is No. 2 Friedeman, SW SE SE section 28-19-3.

Okfuskee County

Carter Oil Co. has completed No. 4 Dill, C SW SE section 2-11-8, in the Dill pool of Okfuskee County. It topped Hunton lime, the producing formation, at 3,901 feet; total depth, 3,926 feet, and swabbed 48 bbls. of oil in 14 hours. After acidizing, it flowed 324 bbls. net in 15 hours through 1-inch choke. Fred Cusack and others No. 1 Keys, NE NW SW section 11-11-8, on the south edge of the Dill area, was dry and abandoned at 4,237 feet, total depth, where it had a hole full of water. Hunton lime was topped at 4,150 feet.

C. C. Cumming No. 1-A Carolina, SW SE SE section 18-10-9, location, was the only new Okfuskee County operation.

Amerada Petroleum Corp. and Stanolind Oil & Gas Co. No. 1 Carolina, SW cor. section 31-10-9, in the Okfuskee County extension of the Olympic area, flowed 231 bbls. of oil in 14 hours after a 60-quart shot at 1,723-53 feet. Senora sand was topped at 1,705 feet and based at 1,754 feet. Gas gauged 1,000,000 feet.

Cleveland County

Two new operations were started in the Moore area of northern Cleveland County. Sinclair Prairie Oil Co. No. 1 Hussman "B," NE NE SW section 21-10-2w, and same operator's No. 1 Peaches, NE SE NW section 21-10-2w, were digging cellar and pits.

Pottawatomie County

No completions were reported and only two new operations were started in Pottawatomie County. Magnolia Petroleum Co. No. 2 N. Vieux, NW SE SW NE NW section 17-20-12, location; Stoner Brothers No. 1 Osage, NW NE SW section 18-22-8, wildcat, location; Comail Oil Co. No. 11 Osage, SW NW SE SW section 32-22-8, standardizing; Link Oil Co. No. 8 Osage, SE NW NE section 8-22-12, location; Nadel & Lebow No. 1-A Osage, SW SE SE NW section 23-23-7, location; Lewis Production Co. and Continental Oil Co. No. 7 Ah-Kah-Ne, NE NW SE section 9-24-7, location; same operator's No. 8 Ah-Kah-Ne, NW NE SE section 9-24-7, location; same operators' No. 8 Ah-Kah-Ne, NE NW SE section 9-24-7, location; Gray & Folson No. 1 Osage, SW SW NE section 33-25-7, wildcat, cellar; Philtex Oil Co. No. 20 Osage, C W half NE NW section 22-25-12, building rig.

The Naval Reserve pool was reported extended three locations north by Tide Water Oil Co. No. 2 Osage, SE SW NE section 9-24-7, which was producing from 17 to 20 bbls. of oil an hour from Bartlesville sand at 2,553-2,625 feet, after a 60-quart shot. It is on a tract purchased at the last Osage Indian lease sale.

Branstetter No. 2 Osage, NW SE SW section 28-22-11, flowed and swabbed 150 bbls. of oil in 24 hours, was acidized and waiting. Hominy sand was topped at 2,016 feet; total depth, 2,084 feet.

Seminole County

Magnolia Petroleum Co. No. 6 Browning, C W half NW NW section 14-10-6, in the South Keokuk area of Seminole County, flowed 303 bbls. in five and one-half hours through casing and 151 bbls. in two hours through tubing and was completed at 4,200 feet, total depth. Misener sand was topped at 4,186 feet. Gulf Oil Corp. and others No. 2 Scott 43-C, C E half SE NW section 11-10-6, topped Misener sand at 4,144 feet; Hunton lime, 4,151 feet; total depth, 4,152 feet. It swabbed 77 bbls. of oil in six hours before acidizing and 12 bbls. net in one hour after acidizing. After flowing 182 bbls. in 21 hours through tubing, casing was perforated and it flowed 108 bbls. through casing in two hours and 15 minutes and 186 bbls. in 21 hours through tubing, completed. Carter Oil Co. No. 2 Badger, C W half SW SW section 11-10-6, flowed 184 bbls. in six hours and was completed. Misener sand was topped at 4,193 feet; total depth, 4,207 feet.

Wood Oil Co. No. 2 Homestake, SW NE SW section 28-9-6, topped Wilcox sand at 4,138 feet; total depth, 4,150 feet. It swabbed 20 bbls. in one hour after shot, was cleaned out and swabbed 480 bbls. in 24 hours, completed. Sipars & Foster No. 1 Billington, SE SE SW section 28-7-6, was bottomed at 2,916½ feet, plugged back to 2,425 feet and was dry and abandoned when shooting failed to make a producer. Carter Oil Co. No. 1 Sauls, C N half SE NE section 3-10-6, topped Misener sand at 4,161 feet, drilled to 4,169 feet, produced salt water and was dry and abandoned. Same operator's No. 1 McDonald, C W half NE NW section 23-10-6, an old well, was deepened from 4,225 feet to 4,236 feet, plugged back to 4,222 feet and swabbed 145 bbls. in 18 hours.

New operations in Seminole County: Sinclair Prairie Oil Co. No. 1 Kirby, SE SW NE section 12-5-7, location; same operator's No. 3 Harjo, NE NW SE section 12-5-7, location; Superior Oil Co. No. 2 Grisso, NE SE NW section 35-9-6, old well deepening, drilling at 4,090 feet; Amerada Petroleum Corp. and Stanolind Oil & Gas Co. No. 1 Kirby, NW cor. section 6-9-9, building rig.

Amerada Petroleum Corp. No. 1 Killingsworth, SE SW NE section 23-9-6, an old well bottomed at 4,141 feet in Wilcox sand, was plugged back to 4,054 feet, acidized, pumped 137 bbls. of oil net and 16 bbls. of water in 24 hours, recompleted.

Sinclair Prairie Oil Co. No. 2 L. Harjo, NW NW SE section 12-5-7, topped Wilcox sand at 4,235 feet, was bottomed at 4,253 feet, and flowed and swabbed 1,352 bbls. of oil in 15 hours. Exchange Drilling Co. No. 1-A D. Harjo, C SE SW section 25-9-6, was acidized with 4,000 gallons and 400-bbl. oil load and swabbed 90 bbls. of oil net in 24 hours. Hunton lime was topped at 4,000 feet; Sylvan shale, 4,004 feet; total depth, 4,019 feet. Carter Oil Co. and others No. 1 Bruner 28-C, C N half NW SW section 2-10-6, topped Hunton lime at 4,150 feet; total depth, 4,156 feet, and flowed 285 bbls. of oil in three hours through casing and 75 bbls. in one hour through 1-inch choke. Same operator's No. 3 Bruner 32-C, C W half NW NE section 19-10-6, total depth 4,596 feet, swabbed 222 bbls. of oil in 10 hours.

Hughes County

The Olympic pool again was the "main show" in Hughes County, with its weekly quota of Senora sand producers. George Manahan and others No. 6 Oliphant "C," NW NE SW section 1-9-8, topped Senora sand at 1,663 feet, was shot with 60 quarts

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Central West

Operations in Central Ohio, Kentucky, Illinois, Indiana

By GEORGE A. WHITNEY

FINDLAY, Ohio, Apr. 13.—There is more activity shown in the Central West fields than for several months. Operators are getting busy leasing, starting wells, and possibly much drilling will soon be under way, and it looks like old times. The Lima field is rather quiet, but the Central Ohio field makes up for it.

In Lorain County, Dempsey & Co. No. 1 on the Cleveland Stone Co.'s Lot 6, Ridgeville Township, is a gas well at 2,525 feet. Walter Kline No. 1 on the J. C. Burge farm, Lot 14, Brighton Township, is a gas well at 982 feet.

In Wayne County, Ohio Salt Co. No. 1 fee land, section 12, Chippewa Township, is a gas well at 492 feet, and John Harpsters No. 1 on the E. T. Beichler farm, is a gas well at 492 feet. Ohio Fuel Gas Co. is drilling on the Grant Alleman farm, section 11, Clinton Township.

In Ashland County, Ohio Fuel Gas Co. has a rig for No. 1 on the Leo E. Koons farm, Lot 31, Sullivan Township, and a rig on the Mary Stanislawski farm, Lot 33.

In Holmes County, Mehowe Oil & Gas Co. No. 1 on the Clara Shaffer farm, section 11, Washington Township, is a gas well at 870 feet. Same company has a rig for No. 1 on the Hannah Tidball farm, Lot 19, Monroe Township.

In Coshocton County, Preston Oil Co. No. 5 on the L. H. Griffin, Lot 40, is a gas well at 3,185 feet. In Perry Township, Murphy & Co. No. 2 on the Myers & Mosholder farm, is a gas well at 3,083 feet.

In Stark County, East Ohio Gas Co. No. 2 on the Katherine Belden farm, section 19, Plain Township, was dry. Ohio Fuel Gas Co. No. 1 on the B. F. Walter farm, section 21, Sugar Creek Township, was dry at 4,140 feet. In Perry Township, Brendel Producing Co. No. 1 on the Magdaline Jones farm, section 1, same township, is a gas well at 4,597 feet. East Ohio Gas Co. No. 1 on the R. V. Mitchell farm, section 27, Jackson Township, is a gas well at 4,280 feet. Wittmer Co. No. 1 on the C. T. Rohr farm, section 19, same township, is dry.

In Belmont County, A. J. West & Co. No. 1 on the E. O. Perkins farm in Kirkwood Township, was dry at 1,522 feet.

INDIANA

Mid-West Development Corp. No. 1 on the Maud and Dennis Harper farm, NW NW section 26, Columbia Township, produced an initial of 100 bbls. Gib Van Oil Co. No. 5 on the Agnes Haskins farm, NW SE section 18, Washington Township, was dry. In Dubois County, Claud Noble No. 1 on the J. D. Neukan farm, SE NE section 25, Harbison Township, was dry.

In Decatur County, Hoosier Public Utility Co. No. 1 on the N. R. Lanham & Co. farm, SE SE section 12, Washington Township, produced 5 bbls. initial.

In Hancock County, J. Harve Snyder No. 1 on the Wilbert Messena farm, NW NW section 28, Brandywine Township, is a gas well.

In Knox County, O. A. Thayer No. 3 on the Barton Yates farm, section 15, Busseron Township, produced 15 bbls. at 799 feet. Lloyd & Parker No. 1 Claude Decker farm, section 36, same township, was dry.

KENTUCKY

In McLean County, Major Washburn No. 3 on the Shockley Brothers, produced an initial of 50 bbls. Kentucky Producing Co. and others No. 1 on the colored graveyard, same county, is dry. Humes, Steel & Co. No. 2 on the J. Conrad farm, same county, was dry.

Kentucky shows an increase in production. Total runs from wells served by the Illinois Pipe Line Co., in western Kentucky, for March amounted to 113,821.79 bbls.

after drilling to 1,718 feet, total depth, and flowed 461 bbls. of oil in 24 hours, completed. Same operator's No. 4 Dixon "C," NE NW NE section 12-9-8, swabbed 45 bbls. of oil in 24 hours after a 60-quart shot and was completed. Senora sand was topped at 1,706 feet; total depth, 1,755 feet.

Sinclair Prairie Oil Co. No. 6 Oliphant, NW NW SE section 1-9-8, topped Senora sand at 1,656 feet; total depth, 1,711 feet. It flowed 235 bbls. of oil in eight hours after a NW SE section 13-7-4, in the St. Louis district, was rigging up rotary. Conley Drilling Co. No. 1 Vinson, NE cor. section 13-7-4, old well deepened from 3,971 feet to 4,033 feet, was testing.

Smith & Scott No. 2 Goodwin, NE NE NW section 3-7-4, pumped 103 bbls. of oil net in 24 hours after acidizing with 2,000 gallons. Simpson Dense was topped at 4,184 feet; Dolomite, 4,228 feet; total depth, 4,266 feet. It was plugged back to 4,229 feet to acidize. Commercial Drilling Co. and others No. 1 Brandenburg, NW NW SW section 34-8-4, swabbed 10 bbls. of oil in one hour from Hunton lime topped at 3,840 feet; total depth, 3,907 feet.

Creek County

Two gassers were completed in Creek County. Edna Oil Co. No. 1 Beaver, NE NE NW section 19-17-10, produced 1,250,000 feet of gas daily from Red Fork sand at 2,112 to 2,185 feet; total depth, 2,290 feet. Abraham No. 1 Dickson, CWL NW NW section 19-17-10, had Layton sand at 960 to 992 feet and gas gauged 1,000,000 feet daily.

Three new operations in Creek County were reported. Deep Rock Oil Corp. No. 8 Brinton, SW NE SW section 6-18-7, was a location; Curtis Oil Co. No. 1 Kelly, NW NW SW section 5-18-9, machine; Guy Harris and others No. 1 Sellars, NW SE NW section 13-17-7, cellar.

Okmulgee County

No completions were reported in Okmulgee County and only one new operation was listed. Misener No. 4 Larney, SE SW NE section 28-15-14, was a location.

Lincoln County

One producer and one failure was Lincoln County's contribution to the list of completions. Stanolind Oil & Gas Co., Amerada Petroleum Corp. and Slick-Urschel Oil Co. No. 4 Cragg, NW cor. section 12-14-3, in the Chandler area, had Skinner sand at 4,203 to 4,238 feet; total depth, 4,245 feet. It swabbed and flowed 126 bbls. of oil in 24 hours after a shot with 10 quarts at 4,205-15 feet; then flowed 110 bbls. of oil in 21 hours and was completed. Texas Co. No. 1 Hollister, SE NE NE section 6-14-3, was dry and abandoned at 5,050 feet. It had Wilcox sand at 5,016-42 feet and a hole full of water at 5,050 feet. It was plugged back to 4,816 feet and shot, with no results. There were no new operations.

Atoka County

R. W. Vierson and others No. 1 Williams, NE SW NW section 34-2s-10e, wildcat in Atoka County, was dry and abandoned at 4,930 feet, total depth. Wapanucka formation was topped at 3,910 feet. At 4,100-15 feet gas gauged 100,000 feet.

Marshall County

Kingston Oil & Gas Co. No. 3 Felts, SW NE NW section 6-8-6, in Marshall County, had sand at 529-42 feet; total depth, 550 feet. It pumped 25 bbls. of oil and 40 bbls. of water in 24 hours and was completed. Heddington and others No. 1 Snell "B," SE SE NE section 36-7-5, was abandoned at total depth of 20 feet.

One new operation in Marshall County was reported. Helmerich & Payne No. 1 Taliaferro, NW SE SW section 26-5s-5e, wildcat, was a location.

Carter County

Maxine Oil Co. No. 2 Eaces, NW NW SE section 5-2s-2w, was dry and abandoned in black shale at 1,595-1,611 feet, total depth, and was the only Carter County completion.

Two new Carter County operations were started. Shell Petroleum Corp. No. 64 Wirt Franklin, NW SW NE section 8-4s-3w, was drilling at 235 feet; Wolverine Oil Co. No. 1-A J. H. Dillard, C E half NW SW section 22-4s-2w, was a location.

Cox & Hamon No. 1 Mena, NE NW SE section 6-2s-2w, had five sand series between 1,800 and 2,405 feet and was bottomed at 2,511 feet. It flowed 60 bbls. of oil in the first five hours and produced 2,000,000 feet of gas.

Bryan County

Trio Oil Co. No. 3 Gilbert, C SW section 25-8s-7e, wildcat in the southwestern corner of Bryan County, south of Platter, was moving in tools.

Southwestern Oklahoma

George Pace and others No. 10 Allen, NE cor. section 3-2s-8w, in the Empire area of Stephens County, was dry and abandoned at 2,238 feet. Same operators' No. 1 T. A. Spencer, SW SW SE section 21-3-10w, wildcat in Comanche County, drilled to 4,164 feet; plugged back to 1,850 feet, produced 1,000,000 feet of gas and was completed. Apache Oil Corp. No. 1 Stone, SW NW NE section 34-7-17w, in Kiowa County, had sand at 938-962 feet, total depth. It flowed 8 bbls. of oil in 24 hours, with gas measuring 500,000 feet, and was completed. C. R. Conyer and others No. 1 Robertson, NE NE SE section 15-1-20w, in Jackson County, was abandoned at 1,611 feet, total depth. It had shaley wash at 1,572-1,611 feet.

New work in southwestern Oklahoma: In Stephens County, Mudge Oil Co. No. 3 Anderson, SE SE SW SW section 10-3s-5w, drilling at 524 feet. In Jefferson County, Neal Franklin and others No. 1 Smart, SW SW NE section 13-7s-6w, rigging up rotary tools. In Comanche County, Ashcraft & Palmer No. 6 School Land, NE NE SW NW section 20-2-10w, rigging up rotary tools. In Jackson County, Gulf Oil Corp. No. 5 Boucher, NW SE SW section 32-1-19w, derrick.

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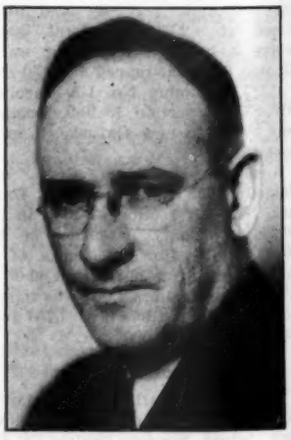
NEW CONTINENTAL SUPPLY MANAGEMENT

C. N. SWANSON

C. N. Swanson, assistant district manager for the Continental Supply Co., in charge of East Texas, has been transferred to Tulsa as district manager in charge of the Oklahoma and Kansas districts. He has been with the company 20 years in Oklahoma, Kansas and Texas.



R. D. MANNIX

R. D. (Bob) Mannix, who has been in charge of the Oklahoma City district for the past five years, covering the southern and western portions of the state, has been transferred to Tulsa as general assistant to Mr. Swanson.

California Field Report

MORE WILDCAT EXPLORATION NOW REPORTED IN PROGRESS

By L. P. STOCKMAN

LOS ANGELES, Calif., Apr. 13.—Wildcat exploration in California has shown a consistent increase during the past several months and with two new fields discovered so far this year it is within the realm of possibility that this aggressive exploration may result in the discovery of one or more fields of primary importance, from a production standpoint, before 1936 draws to a close. The Continental Oil Co. started the ball rolling early this year by completing a discovery well in the Javon district of Ventura County and the Union Oil Co. stepped out in March by finishing its No. 1 Adam and thereby opened up a new productive area in the Santa Maria Valley. The acreage in each of these fields is held in large blocks by reputable operators and consequently neither district is expected to show large production during the present year.

The Javon field, located about midway between the San Miguelito and Rincon fields on the Ventura anticline, and the new production area in the Santa Maria Valley are expected to be of secondary importance from a production standpoint and substantially inferior to Kettleman Hills, Ventura Avenue, Long Beach, Santa Fe Springs and other major fields which are ranked as being of primary importance. The Javon field yields a desirable crude oil testing 30 degrees A.P.I., whereas the new Santa Maria Valley field is producing a heavy unrefinable crude testing 18.1 degrees. Of the two, Javon is considered the better because of structural conditions and greater thickness of potentially productive acreage. The Javon field is controlled by the Continental Oil Co., General Petroleum Corp. and the Chanslor-Canfield Midway Oil Co. Most of the potentially productive acreage in the new Santa Maria Valley field is held by the Union Oil Co., A. N. Macrate and the Hancock Oil Co.

Humboldt County

The Texas Co. No. 2 near Eureka in Humboldt County, hit a gas pocket a few days ago and blew in flowing mud and water for a period of two hours before sanding up. This wildcat, located in section 22-3-1, sanded up so tight that the bit and drill pipe froze in the hole. The company dispatched fishing tools and sent its general superintendent to the north in one of its planes in order to minimize lost time and permit a resumption of drilling at the earliest possible moment. No oil accompanied the mud and water which was coming from the bottom of the hole at 4,357 feet, but it may be possible that the company may have discovered another new gas field. This is the second wildcat which the Texas Co. has drilled in Humboldt County and, while the first test showed a small amount of gas, the accumulation was not sufficiently large to result in commercial production. In the Tulare Lake district of Kings County, the Union Oil Co. has reached a depth of 4,675 feet in No. 1 Giannini, a wildcat which the company is drilling in conjunction with the Hancock Oil Co. Several formation tests have been conducted during the course of work and it may be possible that the Union may be able to back up and develop commercial gas production if the lower part of the hole made as a result of additional drilling proves barren. This well is being drilled in order to determine the possibility of opening up a new oil field in this area but if this endeavor is unsuccessful, an effort will be made to develop commercial gas production.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	March 29		March 22			
Intercoastal-domestic:	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Diesel and gas oil	.....	.....	.....	.....	151,541	527,098
Gasoline	314,286	44,898	.....	.....	1,534,259	1,586,452
Kerosene	.....	.....	.....	.....	385,956	468,421
Foreign exports:						
Crude oil	5,950	864	330,593	47,228	2,146,341	2,682,413
Fuel oil	181,744	25,963	240,495	34,356	2,453,863	3,354,232
Diesel and gas oil	162,553	23,222	169,406	24,201	1,142,652	918,136
Gasoline	76,840	10,977	93,635	13,376	1,471,955	1,148,053
Kerosene	.....	.....	5,729	818	136,080	265,476
Other unfinished oil	.....	.....	.....	.....	6,439	42,064
Coastwise-domestic:						
Crude oil	180,534	25,791	155,611	22,230	1,506,946	1,424,652
Fuel oil	125,018	17,860	322,023	46,003	2,376,448	2,211,962
Diesel and gas oil	17,230	2,447	22,719	3,246	409,366	211,867
Gasoline	295,603	42,229	371,713	53,102	3,293,645	1,801,126
Kerosene	3,584	512	4,423	632	70,902	34,598

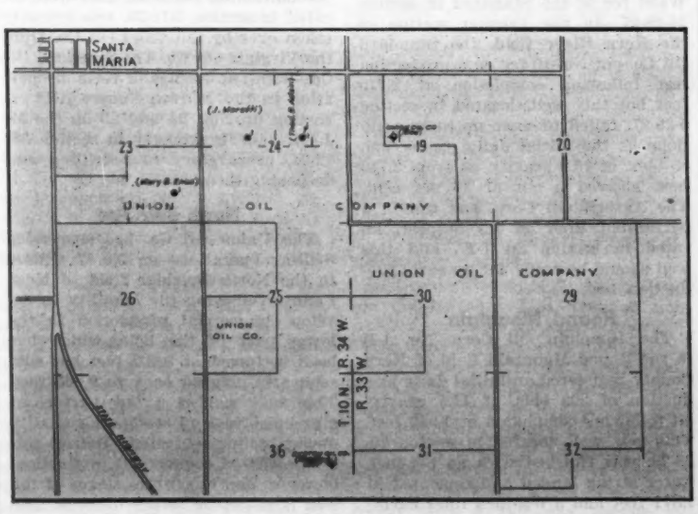
TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic:						
Diesel and gas oil	.....	.....	.....	.....	.....	157,258
Kerosene	.....	.....	.....	.....	.....	149,715
Asphalt	.....	.....	.....	.....	.....	71,325
Lubricants	.....	.....	5,829	833	7,608	12,381
Foreign exports:						
Crude oil	.....	.....	145,973	20,853	628,909	550,129
Fuel oil	108,785	15,541	290,853	41,550	1,060,040	400,245
Diesel and gas oil	12,781	1,826	31,056	4,437	144,693	342,812
Gasoline	.....	.....	.....	.....	717,192	780,368
Kerosene	.....	.....	698	100	163,707	213,898
Lubricants	.....	.....	30,780	4,397	73,788	50,569
Coastwise-domestic:						
Fuel oil	176,481	25,212	72,481	10,354	1,911,982	747,591
Diesel and gas oil	43,186	6,169	41,698	5,957	161,782	79,662
Gasoline	109,282	15,612	68,734	9,819	1,133,072	860,893
Kerosene	4,692	670	.....	.....	44,692	10,149

Redondo—Torrance

The western end of the Torrance field of Los Angeles Basin is undergoing extensive development at the present time and within another 30 days developments indicate the possibility that there will be 50 strings of tools in operation. This development should close the gap between the western limits of the Torrance field and a group of eight wells finished within the corporate limits of the city of Hermosa Beach. Several years ago the city of Redondo, located at tidewater, prohibited drilling operations within the municipality and in doing so precluded development in the western part of the Torrance field. Recently drilling restrictions were lifted in a portion of the city and the removal of this ban has permitted operators to extend the western limits of the Torrance field. Production contours indicate rather definitely that the wells in Hermosa Beach are located out on the north flank of the structure and that a substantial part of the Torrance-Redondo structure lies out beneath the tidelands fronting along Redondo Beach. The existence of a northeast cross fault has been definitely proved up east of Redondo Beach but the projected cross fault located immediately adjacent to the tide line is still more or less conjectural, as no tangible proof of its existence has been manifested as a result of actual drilling.

This new development in the Redondo section of the Torrance field reflects the completion within the past 60 days of Thomas R. Clark No. 1 in section 6-4-14, and the Dumas-Lewis Oil Co. No. 1 in the same section. The Dumas interests have blocked up 21 drilling sites and these locations will be drilled as quickly as possible commensurate with the risks involved and the results of drilling operations on adjacent acreage. At the present time, preparations are being made to spud in Dumas-Lewis Oil Co. No. 2, B. C. Morrison No. 1, Mullins Oil Co. No. 1, Redondo Oil Corp. No. 1, Tu-Jax Oil Co. No. 1 and the Walkin Oil Co. No. 1. The Linderman Oil Corp. has already spudded in its initial test in this district and is rigging up rotary drilling equipment for No. 2. The White Five Oil Co. is rigging up pumping equipment on its No. 1, which has been plugged back from 3,885 feet to 3,795 feet and has started rig construction for No. 2. Most of this new development in the Redondo-Hermosa section of the Torrance field is of the town lot variety with many of the wells located on one or two city lots. Based on completions in this area up to the present time and the present production of producing wells located east of the recently restricted area, we may anticipate the completion of relatively small wells, which should range in production from 10 bbls. to 500 bbls. per day. Lack of sufficient gas pressure will necessitate the installation of pumping equipment and, as is usually the case with heavy oil averaging approximately 16 degrees A.P.I., the initial daily production will be relatively small. In the older section of the Torrance field, Chanslor-Canfield Midway Oil Co. is rotating ahead in No. 23 Del Amo at 4,774 feet and the Rennek Oil & Gas Corp. is cleaning out its No. 1 at 3,165 feet following the landing of 8⅝-inch casing at 3,145 feet. These two wells are



New oil field discovery in Santa Maria Valley, Union Oil Co. No. 1 Adam flowing 2,200 bbls. daily between small pumper and duster only mile apart

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being carried on down as deep tests for the specific purpose of determining the possibility of developing commercial production just above the granite basin.

Edison

Two new wells were completed in the Edison field of Kern County during the current week and a like number are expected to be finished within the next 10 days. The Bauer Oil Co. successfully completed its No. 2 in section 21-30-29, and this new well was brought in pumping 146 bbls. of 16.1 gravity oil per day from 3,194 feet. The A. T. Jergins Trust, which has pursued a rather aggressive development program in the Edison field, added a new well to its list of producers in this area by completing No. 12 Hershey pumping 290 bbls. of 16.2 gravity oil which shows a cut of approximately 10 per cent. This new well was bottomed at 1,812 feet and finished with an 11¾-inch water string landed and cemented at 1,620 feet and an 8⅝-inch liner carrying 195 feet of perforated. The General Petroleum Corp. No. 9 Knapp was bailed dry following completion at 1,458 feet and the hole was accordingly plugged back to 1,370 feet and drilling operations suspended. The Whittier-Santa Fe Springs Oil Co., the Monterey Exploration Co. and R. E. Corbett should have potential producers ready for a production test in the immediate future.

Out on the west front of the Kern River field, where a number of new wells have been completed during the past six months, the Chanslor-Canfield Midway Oil Co. early this week completed its No. 58 in section 23-28-27, pumping 137 bbls. of 15.4 gravity oil per day from 2,180 feet after the hole had been finished with a 10¾-inch water string landed at 1,952 feet and an 8⅝-inch liner including 119 feet of perforated. Several new wells are scheduled for completion within the next few days and it is problematical just which well will be tanking oil the soonest. The General Petroleum Corp. has No. 5 Young ready for a production test at 2,157 feet and the Republic Petroleum Co. has concluded drilling operations on No. 1 Fleishacker at 1,981 feet and No. 7 Strassburger at 1,927 feet. These wells should be followed into production within a short time by No. 7 of the Kern River Oilfields, Ltd. in section 25-28-27, and No. 2 Ward fee of the Standard in section 24-28-27. In the Premier section of the Kern River field, the Standard Oil Co. put No. 10 fee on a production test following completion at 2,710 feet but this well, located in section 5-28-27, failed to come up to expectations as the initial daily production, 85 bbls. of 15.9 gravity oil from 2,710 feet, showed a cut of 30 per cent. The Ausbrit Oil Corp. has run in a perforated liner in its outpost, located in section 20-27-27, and this well should be ready for an early production test.

Round Mountain

The Honolulu Oil Corp. No. 1-B in the Round Mountain field of Kern County registered an initial daily production of 222 bbls. of 17.5 gravity oil following completion at 1,950 feet. This new well, located in section 20-28-29, was finished with an 8⅝-inch water string landed and cemented at 1,871 feet and a 6⅝-inch liner carrying 50 feet of perforated. Coincident with the completion of No. 1-B, the Honolulu spudded in No. 88 in section 18-28-29, and started rig construction for No. 77 on the same property. The Shell Oil Co. has apparently decided to make up for lost time as it has started rig construction for wells Nos. 4 and 5 on the Caldwell lease in section 7-28-29, and has staked location for No. 6 Caldwell located 313 feet north and 1,090 feet west of E quarter cor. section 7-28-29. Helm & Pruitt are rotating ahead in their No. 1 Olcese in section 17-28-29, in a sandy shale at 2,166 feet but have not yet encountered the pay which was expected to have been picked up above this depth. The Union Oil Co. spudded in No. 1 Murdock in the Mount Poso field of Kern County a few days ago and since location has been staked for No. 11 Tribe in section 28-27-28, it appears quite probable that the latter well will be started in the immediate future. The Vanguard Oil Co., after drilling to 1,703 feet, where a brown siltstone was encountered, plugged back the hole to 400 feet, at which point redrilling operations were undertaken. This well is definitely north of the Mount Poso fault and preparations are under way to whipstock the bottom of the hole approximately 250 feet west of the surface location.

Two small wells were completed in the Midway-Sunset field of Kern County during the current week and both of them likewise show a rather high water cut. The Petroleum Drilling & Exploration Co. No. 2 Freid in section 25-12-24, was completed pumping 74 bbls. of 22.1 gravity oil which showed a cut of 5 per cent. This new producer was finished at 2,365 feet after the hole had been plugged back from 2,381 feet and a 6⅝-inch liner landed on bottom. The General Petroleum Corp. No. 77 Moco in section 35-12-24, was brought in pumping 30 bbls. of 16.1 gravity oil per day from 810 feet after the hole had been plugged back from 2,305 feet. The company's No. 1 Main Line in section 6-11-23, is rotating ahead in the pay at 2,425 feet and should consequently be listed as an early completion. The Gibson Oil Co., which spudded in recently No. 2 O'Brien in section 6-11-23, is rigging up rotary drilling equipment to redrill No. 3, which was recently acquired in a deal consummated with Hart & Dearin. The Chief Oil Co., which recently completed a new well in the Midway-Sunset field of Kern County, is rigging up No. 1 Francis preparatory to redrilling and reconditioning the hole. This well, located in section 6-11-23, was recently taken over by the Chief Oil Co. from the Virginia Oil Co. The Standard Oil Co., with two strings of tools in operation in the Midway-Sunset field, is rigging up Nos. 24 and 25 on the M. J. M. and M. property in section 36-12-24, preparatory to redrilling and deepening them.

North Belridge

The Union Oil Co. has suspended drilling operations on No. 7 Gibson in the North Belridge field of Kern County following the inability to develop commercial production in the lower part of the hole, which has been bottomed at 9,492 feet but subsequently plugged back to 9,265 feet. This well yielded a few barrels of a greenish cast oil of superior quality during bailing operations. Bottom water prevented commercial production, however, and the future status of the well is therefore rather dubious. The showings found in this well tend to indicate rather definitely that deeper drilling within the proven limits of the field will be successful and con-

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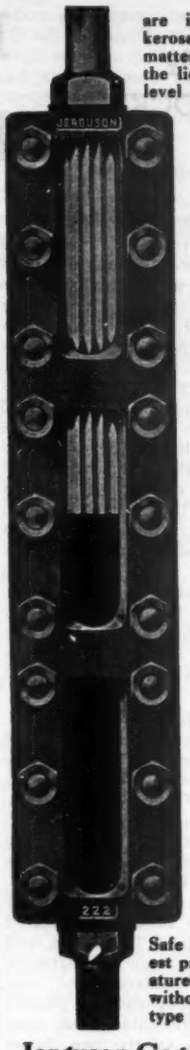

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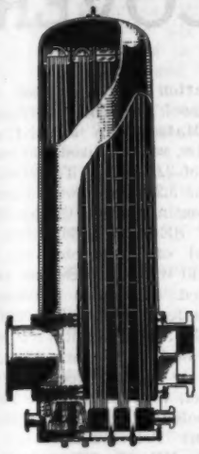

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sequently operators will watch future developments with interest because very little green oil is produced in California at the present time. The Belridge Oil Co. is rotating ahead in the pay in No. 6-1 in section 1-28-20 at 7,910 feet and it appears quite probable that this potential producer will be completed in the present productive horizon and not carried down to the new potentially productive zone found a few months ago by the Union Oil Co. The Continental Oil Co. and the Standard Oil Co. will probably also finish their respective tests in the present productive Eocene, and thus postpone development of the lower zone.

Several potential producers are expected to be given production tests in the Fruitvale field of Kern County during the forthcoming week and as a consequence we may anticipate the completion of two or more new fields during the period in question. The Western Gulf Oil Co., discoverer of the Fruitvale field, has picked up the pay in No. 21-B on the Kern County Land Co. property and has No. 2 Red Ribbon recemented on top of the pay at 3,400 feet. Luther Mayo is making preparations to complete his No. 10 in section 21-29-27, following the conclusion of drilling operations at 4,098 feet and the landing of a 6⅝-inch liner carrying 213 feet of perforated. George Kaar is rigging up pumping equipment preparatory to putting his No. 1 Nickel on a pumping test following completion at 4,550 feet. These wells should be followed into production within a short time by the Magnet Oil Co. No. 1 Anderson and the Mohawk Oil Co. No. 1 Osborn. The S. & G. Oil Co. is cleaning out No. 1 Nickel, which was recently completed pumping 220 bbls. per day from 3,490 feet and should have this job completed within another few days.

Santa Fe Springs

Two wells were put on production in the Santa Fe Springs field of Los Angeles Basin during the past week and two more are scheduled for early completion. The Union Oil Co. completed No. 7 Farwell at 4,501 feet and this new well was brought in pumping 193 bbls. of relatively clean 34.4 gravity oil per day. The Texas Co. recompleted No. 2 Steinly after redrilling and deepening the hole to 4,576 feet but this well was only good for 125 bbls. of 32.1 gravity oil which showed a cut of 17 per cent. The Ohio Oil Co. is making a formation test on No. 18 Recreation, an important outpost in the Playa Del Rey field of Los Angeles Basin and the result of this test will determine the advisability of landing a string of casing for an actual test. The Shell Oil Co. should complete its redrilling job soon on No. 1 Amebco, an outpost in the Long Beach field as the bit at the present time is within 300 feet of bottom, 6,035 feet.

The Shell Oil Co. put two wells on production in the Long Beach field of Los Angeles Basin this week although one of them was a recompletion. This was No. 6 Nesa which was returned to production pumping 81 bbls. of 25.4 gravity oil per day after the hole had been redrilled and deepened to 4,467 feet and finished with a 6⅝-inch liner carrying 74 feet of perforated. The Shell's new completion in this field was No. 12 Cherry Hill which was brought in pumping 286 bbls. of exceptionally clean 28.7 gravity oil per day from 4,764 feet. The well was finished with a 5¾-inch liner carrying perforations at 4,379-4,438 feet and which was cemented through perforations at 4,376 feet. The Twentieth Century Oil Co. finished an important well in the Huntington Beach field several days ago but the output was still showing an excessive water cut at last reports and may necessitate additional work. This was the company's No. 1 which was brought in pumping 122 bbls. of 17.8 gravity oil from 4,490 feet after the hole had been plugged back from 5,170 feet because of bottom water. D. A. West No. 1 Utah-Cal, a new well put on production in the Huntington Beach field this week, was an unsatisfactory completion as it was only good for 40 bbls. of 23.6 gravity oil cutting 35 per cent following completion at 2,845 feet. The W. K. Oil Co. No. 7 Huntington, another new well finished in the Huntington Beach field this week, also registered a water cut in excess of pipe line requirements. This well was brought in pumping 143 bbls. of 24.1 gravity oil cutting 15 per cent from 4,098 feet after the hole had been finished with a 6⅝-inch liner including 155 feet of perforated. The Standard Oil Co. successfully completed a new well in the Kettleman North Dome field several days ago and this new producer, No. 82-7-Q in section 7-22-18, was finished flowing 560 bbls. of very clean 366.3 gravity oil per day. This well was given a preliminary production test several weeks ago but when it only showed an initial daily production of 175 bbls. per day from 8,467 feet the company resumed drilling and made an additional 75 feet of hole. It was returned to production this week after the hole had been redrilled and deepened to 8,520 feet and the hole finished with a 5¾-inch liner carrying 75 feet of perforated which was landed at 8,515 feet.

Eastern Fields

(Continued from Page 182)

No. 34 Brown, Swann, Goshorn & Geary farm and 1,300 feet in No. 35. Both are in Henry district. In Pleasant district, Elk River Gas Co. resumed drilling on the Thompson Coal & Land Co. tract and has reached 1,872 feet.

In Lincoln County, Traub Gas Co. has made a location on the A. W. McLean farm on the Left Fork of Bear Creek in Sheridan district. G. L. Marbohn is rigging up to start deepening No. 1 B. C. Spurlock & Son.

In Pleasant County, the Boreland Springs Oil Co. has made a location on the Warren Roberts farm on Bull Creek in Jefferson district. Tate & Patterson have a location for No. 4 J. W. Hinds on French Creek in Washington district.

In Upshur County, Columbian Carbon Co. is down 2,510 feet on the W. H. Reger farm in Warren district. Union Gas Corp. is also drilling on the J. W. Gould farm in Buckhannon district. In this district, Taylor Cavender has made a location on the R. F. Freeman farm. In Mead district, Cumberland & Allegheny Gas Co. has material for a test on the J. D. Miller farm. From two fairly recent tests a fair gas volume is found in the Benson sand in this county, which is not very far developed.

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Kansas Developments

By
DAL DALRYMPLE

WILDCAT IN SOUTH BARTON COUNTY MAY BE DISCOVERY

Nature was in bad mood over much of the Kansas oil country the past week, but severe dust and rainstorms and unseasonably cold weather failed to lessen the intensive drilling campaign that got under way this spring. Operators carried their search for petroleum into new wildcat areas, apparently were opening at least one new pool, increased the importance of two recently discovered pools with additional production and continued to extend several major proven areas. Of foremost interest during the week was the Lerado area of southwestern Reno County, which was looking more and more like a major field. The new Bloomer pool of northeastern Barton County got its second producer and the opening of another pool in southern Barton County appeared imminent.

Shell Petroleum Corp. No. 1 Reece, SW section 11-26-9w, discovery well in the Lerado area, was retested after having taken two potential tests and flowed at the rate of 491.75 bbls. of oil an hour for six hours before being shut in for tankage. The No. 1 Reece was drilled to total depth of 4,157 feet in Viola lime to open the pool last October and made potential of 898 bbls. It was acidized about a month ago after a fishing job and made potential of 5,571 bbls. Operators believed the well could produce more than the second potential, so larger traps and flow lines were installed and the third test made, the results justifying their confidence. Two other large producers have been completed in the area and a fourth test, Shell Petroleum Corp. No. 1 Nunemaker, NW section 11-26-9w, north offset to the discovery, is nearing completion and looking like a certain producer. The showing in the wells in this area indicate that Lerado will become one of the principal pools of Kansas.

Barton County

The new Bloomer pool, east of Claflin in Barton County, has a second producer at Texas Co. No. 1 Moran, SE SW section 25-17-11w, which pumped 810 bbls. of oil in 14 hours. It is north of the discovery well which was completed by Yarnell, Carlson & Spencer of Wichita in February and which made 470 bbls. on potential test. The No. 1 Moran was bottomed in Siliceous lime at 3,285 feet.

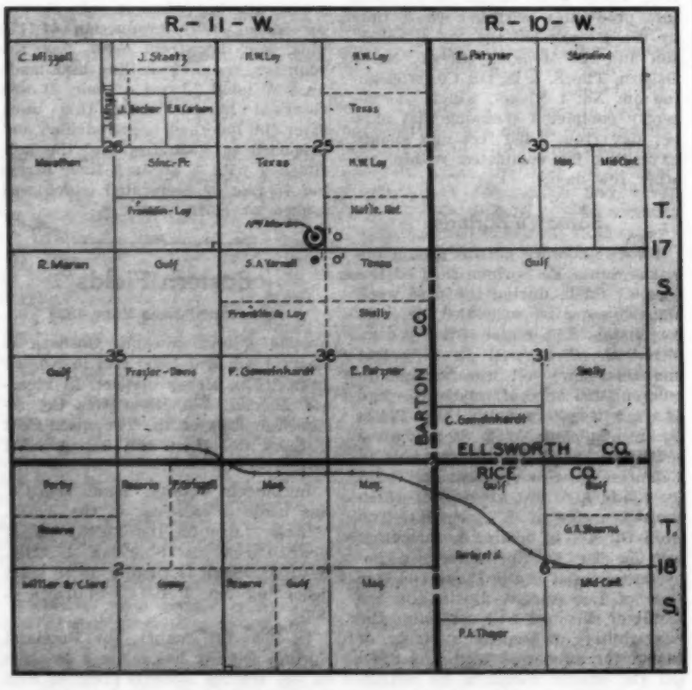
Simpson & Noble and Atlantic Oil Producing Co. No. 1 Hiss, C NW NE section 31-20-13w, is the apparent pool opener in southern Barton County. It is 6 miles southwest of Great Bend. Cores recovered from Lansing lime at 3,270-85 feet were saturated with oil. It logged 50 to 70 feet higher than other tests in the region and probably will open a big pool if productive. Derby Oil Co., Amerada Petroleum Corp., Texas Co., and Western Petroleum Exploration Co. have acreage under lease in the area. The Atlantic company has a big block.

Rice County

Gulf Oil Corp. No. 8 F. E. Steckel, SW NW NW section 31-19-10w, in the Silica area of Rice County, made potential of 1,088 bbls. of oil, with 362 bbls. of water, and was completed. Siliceous lime was topped at 3,277 feet, total depth 3,296 feet, plugged back to 3,295 feet. Bradley Oil Co. No. 4 Wendell, SE NE NE section 32-19-10w, topped Siliceous lime at 3,282 feet, total depth 3,297 feet, made a potential of 1,744 bbls. of oil, and was completed. Gulf Oil Corp. No. 2 Wendell, NE NW SE section 32-19-10w, made potential of 1,584 bbls. after acidizing and was completed. It topped Siliceous lime at 3,300½ feet, total depth 3,320 feet. Stanolind Oil & Gas Co. No. 4 Mitchell, NW NE SW section 32-19-10w, topped Siliceous at 3,314 feet, total depth 3,331 feet, was acidized, made potential of 977 bbls. of oil, and was completed.

In the Keesling area, Gulf Oil Corp. No. 3 Keesling, SE SW SW section 10-20-9w, was acidized and made potential of 667 bbls., completed. Top of Siliceous lime was 3,207 feet, total depth 3,234 feet. Stanolind Oil & Gas Co. No. 2 Smith, NW NE SE section 16-20-9w, topped Siliceous lime at 3,237 feet, total depth 3,258 feet, made potential of 1,273 bbls. of oil and was completed. In the Geneseo district, Empire Oil & Refining Co. No. 1 Janssen, NE NE NW section 3-18-8w, was completed after drilling to 3,282 feet, total depth, and making potential of 956 bbls. of oil, cutting 5 per cent water.

New work in Rice County: Pryor & Lockhart and others No. 1 Habiger, SE NE NE section 5-18-10w, location; Vickers Petroleum Co. and others No. 3 Guldner "A," NE NW NW section 16-18-9w, set 12-inch casing at 222 feet and waiting; Pryor & Lockhart and others No. 3 Moran "A," SE SW NW section 4-18-10w, building rig; Bradley Oil Co. No. 6 Wendell, NW NE SE section 32-19-10w, location; Hutchinson Oil Co. No. 6 Wendell, SW NW NE section 32-19-10w, moving in material; Gulf Oil Corp. No. 1 Knop, SW NW NW section 33-19-10w, building rotary rig; Rose Spring Drilling Co. and others No. 1 Young, SW SW SE section 8-20-9w, moving in material; Gulf Oil Corp. No. 5 Hartle, NE NW NW section 15-20-9w, building rotary rig.



Texas Co. No. 1 Moran, SE corner NW section 25-17-11w, second producer in the new Bloomer pool of Barton County, Kan., increased interest in the area
(Mid-Continent Map Co., Wichita, Kans.)

Barton County

Five producers were completed in the Barton County sector of the Silica pool. Phillips Petroleum Co. No. 2 Matzek, NW NW NE section 36-19-11w, was acidized and made potential of 2,014 bbls. Top of Siliceous lime was 3,284 feet, total depth 3,298 feet. Continental Oil Co. No. 5 Risse, SE SW SE section 36-19-11w, made potential of 1,816 bbls after acid treatment with 4,000 gallons, and was completed. It topped Siliceous lime at 3,279 feet, total depth 3,297 feet. Texas Co. No. 1 Schmidt, NE NE NW section 36-19-11w, encountered Siliceous lime at 3,289 feet, total depth 3,300 feet, was treated with acid and made potential of 1,407 bbls. Mid-Continent Petroleum Corp. No. 3 Schmidt, NE SE SW section 36-19-11w, made potential of 1,255 bbls. after acidizing. It had Siliceous lime at 3,277 feet, total depth 3,287 feet. Magnolia Petroleum Corp. No. 1 Meda Steckel, NW NE NW section 1-20-11w, topped Siliceous lime at 3,287 feet and was bottomed at 3,296 feet. It swabbed 632 bbls. in 14 hours and made potential of 1,250 bbls. after acid treatment.

No new operations were reported in Barton County.

Sinclair Prairie Oil Co. No. 1 Isern, SE SE SW section 25-19-11w, in the Barton County sector of the Silica pool, swabbed 70 bbls. of oil in 15 hours before acidizing and 242 bbls. in 13 hours after acidizing. Siliceous lime was topped at 3,289 feet, total depth 3,301 feet. Continental Oil Co. No. 6 Risse, NE SE SE section 36-19-11w, swabbed 649 bbls. in 10 hours from Siliceous lime at 3,266-73 feet, total depth.

Russell County

Crown Petroleum Co. No. 1 Krug, NE NW NW section 26-14-14w, in Russell County, made potential of 485 bbls. of oil in 24 hours after acid treatment and was completed. Oswald lime was topped at 2,959 feet, total depth 3,040 feet. Texas Co. No. 2 Gurney, NW SW NE section 23-14-14w, made potential of 240 bbls. of oil with 5 bbls. of water in 24 hours after acidizing and was completed. Top of Anhydrite was 777 feet, Oswald lime 2,951 feet, Granite wash 3,212-41 feet, total depth.

Billings No. 1 Witt, SE SE SW section 3-14-15w, had Gorham sand at 3,314-18 feet, total depth, made potential of 225 bbls. of oil, and was completed. Anhydrite was topped at 915 feet, Oswald lime 3,057 feet. Empire Oil & Refining Co. and others No. 1 Major, SE cor. section 11-14-12w, wildcat, was dry and abandoned at 3,261 feet, total depth. Conglomerate was topped at 3,230 feet, Siliceous lime 3,256 feet. Bridgeport Machine Co. No. 1 Polcyn, NW NW NE section 10-14-15w, an old well, was deepened from 3,105 feet to 3,285 feet, made potential of 1,050 bbls.,

and was recompleted. Gorham sand was topped at 3,280 feet.

New work in Russell County: Shell Petroleum Corp. No. 1 Brown, NE NE SE section 31-13-14w, location; Empire Oil & Refining Co. No. 1 Miller, SW SE SE section 31-14-13w, location; same operators No. 1 Adam Ebel, SW cor. section 24-14-14w, location; Texas Co. No. 4 Anschultz, NW NE SW section 1-14-15, location; Central Petroleum Co. No. 4 Witt, SE SW SE section 3-14-15w, moving in material; Marathon Oil Co. No. 1 J. L. Harbough, SE SE NW section 25-14-15w, moving in material.

Lario Oil & Gas Co. and Texas Co. No. 3 Boxberger, C E half NW NW section 24-14-15w, had Siliceous lime at 3,222-26 feet and swabbed 25 bbls. of oil an hour. Gulf Oil Corp. No. 1 Hall, SW NW SE section 36-14-15w, swabbed 184 bbls. of oil in 18 hours after topping Gorham sand at 3,218 feet and drilling 2 feet in.

Sumner County

The largest of three new producers in Sumner County was E. B. Shawver's No. 2 Barlow, SE SW NE section 33-31-1w, in the Wellington area. It made potential of 1,045 bbls. of oil after topping Chat at 3,647 feet, drilling to total depth of 3,680 feet and acidizing. Shell Petroleum Corp. No. 16 Emrich, NW NW SE section 14-32-2, in the Oxford area, was acidized with 8,000 gallons and made potential of 942 bbls. Top of Dolomite was 2,828 feet, total depth 2,852 feet. Deal Oil & Gas Co. No. 1 fee, SW SE SE section 11-32-2, had Stalnaker sand at 2,048 feet, Dolomite 3,022-51 feet, total depth, made potential of 628 bbls., and was completed. In the Churchill area, Shell Petroleum Corp. deepened No. 4 Mason, SW SE NW section 25-31-2, from 1,900 feet to 2,263 feet, and it was dry and abandoned. Kansas City lime was encountered at 2,202-09 feet.

Only one new operation in Sumner County was reported. Stelbar & Dewar No. 1 Barlow, NW NE SE section 33-31-1w, was a location.

Ellis County

A. H. Gibson and others No. 2 Ruder, SE SW SE section 8-15-18w, in Ellis County, was completed at 3,331 feet, total depth, and made 24-hour potential of 866 bbls. of oil. Oswald lime was topped at 3,277 feet. Twin Drilling Co. No. 1 Sander, NE NE NW section 10-14-17w, topped Siliceous lime at 3,545 feet and was dry and abandoned at 3,626 feet, total depth.

Three new tests in Ellis County were reported. Empire Oil & Refining Co. No. 1 J. C. Dreher, NE cor. section 27-15-19w, was a wildcat location southwest of Antonino; Twin Drilling Co. No. 2 Goetz, NE SW SE section 3-14-17w, cellar; Twin Drilling Co. and others No. 1 Copeland, NE NE SE section 26-14-19w, wildcat southwest of Hays, was moving in material.

Margay Oil Co. No. 1 Bemis "B," SW cor. section 15-11-17w, pumped at the rate of 30 bbls. of oil an hour. Siliceous lime was topped at 3,380 feet, total depth 3,382 feet.

Ellsworth County

Carter Oil Co. and others No. 3 Ogden, C SW section 26-17-9w, in the South Lorraine area of Ellsworth County, was acidized with 1,000 gallons, made 24-hour potential of 1,596 bbls. and was completed. Simpson formation was topped at 3,155 feet, Siliceous lime 3,160 feet, total depth 3,166 feet. Same operators No. 5 Teubner, C N half N half NW section 26-17-9w, topped Simpson at 3,170 feet, Siliceous lime 3,173 feet, total depth 3,182 feet. It pumped 633 bbls. of oil in 24 hours before acid treatment, and made potential of 1,250 bbls. of oil, with 30 bbls. of water, after acidizing, completed.

New tests in Ellsworth County: Carter Oil Co. and others No. 4 Ogden, C S half S half SW section 26-17-9w, moving in material; same operators No. 2 Groth, C S half S half SW section 23-17-9w, moving in material.

Reno County

Olson Drilling Co. and Shell Petroleum Corp. No. 3 Johnson, C SE NW section 24-23-4w, in the Burrton area of Reno County, made potential of 224 bbls. of oil, with gas estimated at 1,000,000 feet, and was completed. Chat was topped at 3,257 feet, total depth 3,370 feet.

The following new work in Reno County was reported: Cheney and others No. 1 Moore, NE cor. section 14-26-8w, wildcat east of the Lerado pool in southern Reno County, was building rotary rig; Shell Petroleum Corp. No. 1 S. Collins, NW NW SW section 16-24-4w, building rig; Texas Co. No. 1 Collins, C NE NW section 16-24-4w, old well being deepened, fishing at 3,340 feet; Tide Water Oil Co. No. 1 Burrton State Bank, SE SE NW section 17-24-4w, building rig; Shell Petroleum Corp. No. 1 Whipple, C W half W half NW section 14-26-9w, cellar.

Marion County

Milton and others No. 1 Young, NW NW SE section 17-21-3, wildcat in Marion County, was dry and abandoned in Siliceous lime at 3,074-88 feet, total depth. Chat was topped at 2,605 feet, Hunton lime 2,884 feet, corrected, Viola lime 2,935 feet, corrected, Wilcox sand 2,984 feet.

Greenwood County

Two small pumpers in Greenwood County were completed. Shaffer & Howell No. 4 Sauder, C S half NE SE section 16-23-13, encountered lime at 1,716-56 feet, total depth, was acidized and pumped 25 bbls. of oil a day. Wenzel and others No. 1-A Cross, NE SE NE section 12-27-10, had sand at 1,690 feet, Mississippi lime 1,902 feet, total depth 1,907 feet, pumped 80 bbls. of oil in first 24 hours and 30 bbls. in the next 24 hours and was completed.

Trego County

Two new operations were starting in Trego County. J. J. Hall and others No. 1 Deines, SE cor. section 12-13-24w, was moving in material for a wildcat test; Continental Oil Co. No. 1 Holcomb "A," C W half W half NE section 26-11-23w, was a location.

Butler County

Two producers in Butler County were completed. Vickers Petroleum Co. No. 1-A McCraner "E," C W half SW SE section 35-24-3, pumped 125 bbls. of oil and 24 bbls. of water in 24 hours after acid treatment. Top of Mississippi lime was 2,712 feet, total depth 2,726 feet. Polhamus and others No. 3 Semisch, C NE NE section 5-28-7, had sand at 2,730 feet, total depth 2,784 feet; water rose in the hole and it was plugged back to 2,777 feet to complete. It was shot with 100 quarts and production was

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estimated at 75 bbls. of oil and 25 bbls. of water a day.

New operations in Butler County were as follows: Pryor & Lockhart and others No. 3 Gunther, NW SW NE section 29-26-7, drilling at 1,175 feet; Admiral Oil Co. No. 1-A Brown, C S half NE SW section 29-28-4, fishing at 200 feet; Sanford and others No. 1 Weaver Estate, SE SE NE section 11-28-5, moving in material; Polhamus and others No. 4 Semisch, SW NE NE section 5-28-7, location; George Siefkin and others No. 1-A (3) Alexander, NW SW NE section 15-28-4, an old well, cleaning out at 785 feet, to deepen.

Sedgwick County

No completions were reported in Sedgwick County. The only new work starting was at Western Kansas Oil & Refining Co. No. 1 Keagy, NW SE SW section 15-25-1, moving in machine.

Woodson County

Saco Oil Co. No. 3 Klick, NE SW SW section 20-25-14, was the only Woodson County completion. Broken sand was topped at 1,325 feet, total depth 1,429 feet, plugged back to 1,417 feet. After shooting it swabbed 100 bbls. of oil a day, cleaned out and pumped 125 bbls. a day.

New operations in Woodson County: C. L. Sheedy No. 5 Klick, NW SW SE section 20-25-14, rigging up machine; same operator's No. 4 Klick, SE cor. section 20-25-14, rigging up machine.

Cowley County

New work getting under way in Cowley County was as follows: E. B. Shawver No. 3 Joslyn, NE SW SW section 11-30-4, moving in machine; Trees Oil Co. No. 2 Littell, C SW NE section 19-30-4, moving in material; same operator's No. 1 Harris, SE NE SW section 19-30-4, moving in material; Foraker & Straub and others No. 1 Grant, SW cor. section 18-31-3, spudded and shut down; E. B. Shawver and others No. 1 Dunlap, NW SW NE section 8-34-3, moving in material.

Coffey County

Only one new test was starting in Coffey County. Johnson and others No. 5 Vannocker, NE NW NE section 12-23-14, was spudding. No wells in the county were completed.

Estimated Production

Estimated daily average production in Kansas for the week ending April 11 and for the preceding week is as follows:

	Barrels	
	Apr. 11	Apr. 4
Oxford City	8,000	7,200
Burrton	14,050	14,250
Ritz-Canton	6,825	7,475
Hollow-Nikkel	4,500	4,100
Voshell	3,300	2,825
Ellsworth County:		
Lorraine-So. Lorraine	7,747	8,665
Other pools	1,678	1,586
Rice-Barton Counties:		
Chase	9,687	10,745
Raymond	3,114	3,772
Silica	6,705	6,368
Kraeling	2,564	1,846
Miscellaneous Rice	3,408	3,720
Miscellaneous Barton	2,366	1,911
Russell County:		
Fairport	3,512	3,288
Gorham	2,997	4,330
Russell	2,987	2,974
Other pools	8,799	8,500
Sedgwick County:		
Valley Center	1,384	1,374
Greenwich	1,276	1,345
Robbins	1,580	1,518
Eastborough	852	896
Other pools	422	527
Ellis County	1,243	1,344
Kingman County	940	499
Stafford County	1,495	2,140
Greenwood County	8,950	9,100
Butler County	18,760	18,000
Other fields	19,300	20,177
Total Kansas	148,559	151,775

Canadian Fields

(Continued from Page 188)

Pond district where oil seepages were discovered 40 years ago. Some 20 years ago Sir Boverton Redwood and J. D. Henry became interested in the area but the development was cut short by Mr. Henry's death. Several wells were drilled, mostly on the south side of Parsons Pond, and some of these gave a fair pumping production. Sir John Hope Simpson, commissioner of natural resources for Newfoundland, recently interested himself in the petroleum possibilities of the colony; and initiated the arrangements for developing the field. The old producing wells will be reopened and some new tests put down this summer.

British Columbia Test

In the Fraser Valley area of British Columbia, Natural Gas Development Corp. No. 1, in the Boundary Bay district, 25 miles from Vancouver, is in sandy shale below 1,895 feet with casing run to 1,887 feet. The test is within a few hundred feet of the horizon where Boundary Bay Oil Co. No. 1 deep test some years ago encountered gas production.

Drilling in Ontario

In the Eden field, Elgin County, Ontario, E. P. Rowe No. 4, Ball farm, Lot 26, Concession 8, Bayham Township, got the sand around 1,320 feet and is drilling into production. Olga Gas No. 3 has been located south of No. 2 gasser, in the southeast corner of the Wilson farm, Lot 24, Concession 8, Bayham Township.

In the Brownsville field, Dereham Township, Oxford County, W. J. Hussey & Son No. 1 has ceased on top of the sulfur gas sand at 880 feet and will take production from the Niagara without deepening to the Medina. Hussey No. 2, east of Aloka Oil & Gas Co. No. 1 producer, has landed pipe on top of the rock at about 50 feet.

In Norfolk County, Dominion Natural Gas Co. No. 1 on Clear Creek, west of Port Rowan is shut down at 700 feet waiting for supplies.

In Chatham Township, Kent County, Union Gas Co. No. 3, SW Lot 6, Concession 14, is in a gray lime below 1,800 feet. In the Dover field, E. P. Rowe No. 2, Louis Bruette farm, Lot 5, Front Concession, Raleigh Township, is moving to Rowe No. 3 Bruette.

Drilling Contractors

(Continued from Page 181)

sand at 5,696-5,710 feet. The test is west of the Plymouth field in which two producers were completed for Plymouth Oil Co. during the week. Another wildcat is drilling in Duval County for Stanolind Oil & Gas Co. on the Farmers Life Insurance lease southwest of the Labbe field.

The Loma Oil Co. is drilling a test in the Jacob field and will move in shortly on two additional locations, one to be drilled for the Oklahoma Co. in Zapata County.

Trinity Drillers, Inc., of San Antonio, are drilling wildcats in Duval and Live Oak County for Kepley Production and R. Feltner respectively. The Kepley test is at 2,261 feet., total depth, and the Feltner wildcat is coring at 3,350 feet. Trinity is also drilling in the Lopez field of Webb County for Superior Oil Co.

Rocky Mountain Area

INDICATIONS OF NEW FIELD NEAR CENTER OF COLORADO

By T. R. INGRAM

DENVER, Colo., Apr. 13.—The eastern Colorado wildcat play was started this week with the release of two locations by the Indian Territory Illuminating Oil Co. in Washington and Yuma Counties. Leases placed on record in Weld County indicate that the Continental Oil Co. will drill another well in the New Raymer-Buckingham area. Other locations are expected within the next few weeks.

Earl W. Reader has blocked up 80,000 acres in Fremont County, Wyoming, where a major company probably will drill a test. The Argo Oil Co. No. 6 Elliott, in Lance Creek, is a near completion and a deal closed by the MacKinnie Oil & Drilling Co. and the J. M. Huber Corp. insures an important test in the southwestern part of that field this spring.

Cut Bank field, in Montana, will have about 145 wells drilled this year, of which half will be put down with rotaries. Three wells were completed in that field.

COLORADO

An important oil show which may indicate the opening of a new Colorado field was encountered in South Park Oil Co. No. 1 State, SE corner SW section 16-11s-75, in the Hartsel district, Park County, at 4,157 feet. Oil rose 400 feet in the hole and the bailer was run several times without lowering the column. The oil is high grade paraffin base, testing about 42 gravity. The well has had a number of oil and gas shows above the present horizon. It is not in sand but is believed to be above the Apache Creek (Hygiene) sand near the base of the Pierre shale. Drilling stopped immediately the oil showed until C. E. Shoenfelt, geologist for Petroleum Information, Inc., who located the well, could arrive. The well is almost in the center of Colorado at the south end of South Park, one of the three big natural basins in the mountain area and 4 miles from the town of Hartsel. It is on state land. The state has around 60,000 acres in South Park.

Rumors of the commencement of the wildcat play in eastern Colorado flew thick and fast in Denver this week. Two locations were officially released by the Indian Territory Illuminating Oil Co. in Washington and Yuma Counties and it is almost certain that several others will be made within a week or two.

The Continental Oil Co. is expected to drill another test in the New Raymer-Buckingham district in Weld County. A lease was placed on record at Greeley in which the Malo Investment Co. leases to the Continental company 900 acres in the W half section 28, W half section 21 and E half section 20-8n-59. The lease runs for 60 days and contains a provision that it expires June 2 unless drilling is started in that township by that date. The Continental Oil Co. and others drilled their No. 1 Anthes, C NE NE section 24-8n-59, in 1933 to a total depth of 6,658 feet and tested the Muddy and Dakota. Companies and individuals have been paying rentals on leases in that district for the past five years in the expectation that another test will be drilled. No location has been released by the Continental company and no indication given as to whether, where or when it will drill. However, Manning & Martin, Inc., drilling contractors, are reported unloading some rotary equipment at New Raymer.

The Indian Territory Illuminating Oil Co. released the location for two of its wells to be drilled in eastern Colorado. One of these is in the C NW SW section 21-2s-43, on the Beecher Island block, in Yuma County. The company has a solid block of 23,000 acres except for one 80-acre lease in the center held by the Continental Oil Co. There is a definite surface structure which was checked by the correlation of well logs and shooting in detail by the company. Several wells have been drilled in this area in the past, some of which made as high as 3,000,000 feet of gas a day, but which failed to hold up in pressure. The test is located only a few miles from the Kansas line.

The Indian Territory company also released location for a test in Washington County on the Hyde block in its No. 1, C NE NE section 28-1s-49. The company has a solid block of 10,000 acres with a few edge leases held by the Texas Co. and the Plains Exploration Co. It was shot in detail by the company's geophysical crews. The surface is Tertiary.

W. O. Rennie, Denver geologist, was reported to have finished leasing up a block of 12,000 acres in eastern Kiowa County along the Kansas line. It is said that he represented a major company which heretofore has not been active in this state.

Another well to be drilled shortly, according to the rumormongers, will go down on the Buckeye (Union Pacific) lease on the Wellington structure in Larimer County. The Continental Oil Co. is the sole operator in the field and has this lease. This field is producing from the Muddy sand. It is possible that this will be a deep test to the Sundance.

NEW MEXICO

The biggest producer completed in New Mexico during the week was the Continental Oil Co. No. 3-B-28 Lockhart, C NW SW section 28-21-36, in the Eunice field. It flowed 3,696 bbls. of oil natural through tubing in 24 hours and produced 1,590,000 feet of gas. It had the producing pay at 3,850 to 3,900 feet, total depth. First show was on drill stem test at 3,797-3,850 feet. It was the only completion of the week in the Eunice area.

In the Monument area, Gulf Oil Corp. No. 5 Culp, C SE NE section 19-19-37, flowed 728 bbls. of oil through tubing in the first 24 hours after acidizing and was completed. Gas measured 1,344,000 feet. Oil pay was encountered at 3,870 to 4,000 feet, total depth. First showing of gas was at 2,780 feet. The well would not flow before acid treatment. Ohio Oil Co. No. 1 State-Elliott, C NW SE section 30-19-37, had several shows of oil and gas below 3,270 feet, getting the pay at 3,830 to 3,945 feet, total depth. It produced 576 bbls. of oil natural through 1-inch tubing choke in the first 24 hours and was completed. Another completion at Monument was the Amerada Petroleum Corp. No. 2 Weir, C NW NW section 2-20-36. It flowed 660 bbls. of oil natural through 1-inch tubing choke in the first 24 hours. Oil pay was found at 3,800 to 3,930 feet, total depth. Several oil and gas showings were encountered, beginning at 2,765 feet.

Barnsdall Oil Co. and others No. 1 Hardy, C SE NE section 29-21-37, in the Hardy area, was acidized and flowed 225 bbls. of oil through three-eighths inch tubing choke in 24 hours. Before acidizing with 3,000 gallons, it swabbed 40 bbls. in four hours. Total depth was 3,800 feet in oil pay topped at 3,701 feet.

Ohio Oil Co. No. 1 State-Maxwell, C NE NW section 16-22-36, in the Ohio or McDonald area, was completed at 3,926 feet, total depth, in pay topped at 3,812 feet. Before acid treatment with 3,000 gallons, it flowed 140 bbls. of fluid on gas lift, cutting 20 per cent water. After acidizing, flowed 840 bbls. of oil through tubing choke in the first 24 hours.

Cooper Area

Republic Prod. Co. No. 1 Davis, C SW SW sec. 34-23-36. S.D. indefinitely.
General Crude Oil Co. No. 1 State "F," C SW SW sec. 2-24-36. T.D. 3,624 ft.; flowed 520 bbls. fluid in 24 hrs., 50 per cent water; acidized; testing.
Liberty Oil & Drlg. Co. No. 1 J. W. Hair, SW SW SE sec. 24-24-37. Drlg. 2,490 ft.
Plains Prod. Co. No. 1 R. L. Mosley, C NW SE sec. 34-24-37. Drlg. 3,410 ft. Gas gauged 2,360,000 ft.
Southern Oil Corp. No. 1 Vaughan, C SW SE sec. 15-24-36. Rigging up.
Southern Oil Corp. No. 1 Gates, C NW NW sec. 23-24-36. Rigging up.

Lea County—Miscellaneous

Culbertson-Irwin & Stovall No. 1 J. B. Humphrey, C SE SW sec. 3-25-37. T.D. 3,266 ft. Connecting pressure head.
Plains Prod. Co. No. 1 George Smith, C SE SE sec. 4-25-37. Drlg. 2,965 ft.
Culbertson-Irwin & Stovall No. 1 J. A. Stuart, C SW SE sec. 10-25-37. T.D. 3,294 ft.; hole full of oil; fishing.
Harry Leonard No. 1 Justice, SW NW NW sec. 20-25-37. T.D. 3,501 ft.; P.B. 2,970 ft.; shut down.
Harry Leonard No. 1 Leonard-Lanhart, C SW NE sec. 21-25-37 (on Humble acreage). T.D. 2,979 ft. Gas gauged 17,500,000 ft.; spraying oil.
Texas Co. and Repollo Oil Co. No. 1 Lanchart, C NE sec. 29-25-37. T.D. 3,570 ft. Gas estimated 15,000,000 ft.; killing gas.
Stanolind O. & G. Co. No. 29 Cyrus Farnsworth, C SW NW sec. 18-26-37. T.D. 3,060 ft.; P.B. 3,050 ft.; D.S.T. showed 50 bbls. fluid per hour; P.B. 3,034 ft. Gas estimated 2,000,000 ft.
W. L. Todd et al No. 1 Lemon Permit, C NW SW sec. 17-21-32. T.D. 3,752 ft. Shut down.
Maljamar O. & G. Co. No. 6 Baisch, C NW SE sec. 21-17-32. Drlg. 3,850 ft.
Sun Oil Co. No. 1 Weatherly, C NE SW sec. 17-21-37, wildcat. Drlg. 60 ft.
Ohio Oil Co. No. 1 W. H. Turner, C NE SE sec. 29-21-37. Moving in material.
Landreth Prod. Co. No. 1 J. W. Grizzell, C SE SW sec. 5-22-37. Cellar.
Rowan et al No. 1 Mattern, C SW SE sec. 7-22-37. Cellar and pits.
C. & G. Oil Co. No. 1 E. Weir, C NE NE sec. 14-20-37. Wildcat. Moving in.
Gulf Oil Corp. No. 1 E. King, C SW NW sec. 28-21-37. Location.

Ohio Area

Shell-Devonian No. 1 Christmas, C NE NE sec. 21-22-36. T.D. 3,739 ft. Set 7-in. pipe.

Chaves County

Tannehill No. 2 Campbell, C NE SE sec. 1-11-25. Drlg. 1,120 ft.

Eddy County

Etz Bros. No. 2 State, C NW SW NE sec. 16-17-30. Drlg. 2,320 ft. in lime and anhydrite.
Ohio Oil Co. No. 1 State-McCullough, SE SW SW sec. 16-17-30. T.D. 2,842 ft. Flows 2 heads daily. S.D. for repairs.
Premier Pet. Corp. No. 2 Dexter "E," NW SW NE sec. 20-17-30. Drlg. 2,700 ft.
Tignor, Etz & Keys No. 1 Keys "B," sec 3-17-28. Dry, 1,130 ft.
Red Lake Oil Co. No. 6 State, NE NE SW sec. 32-17-28. Drlg. 1,020 ft.
D. & B. Oil Co. No. 1 Jenkins, NW SW NW sec. 20-17-30. T.D. 3,258 ft.; testing; est. 200 B.P.D.
Dexter & Berry No. 1 Berry, NW NE NW sec. 21-17-30. Drlg. 1,355 ft. Gas estimated 100,000 feet.
Dooley & Dixon No. 1 Commerce, C W½ NW NW sec. 18-20-27. Drlg. 545 ft.
Tex Patillo No. 2 Thomason, NE cor. sec. 1-20-28. Drlg. 1,065 ft.

Sims Area

Samedan Oil Co. No. 1 Parks, 330 ft. from S and 460 ft. from W lines, SW¼ sec. 14-22-37. Drlg. 2,120 ft.
Continental Oil Co. No. 1-A-22 Elliott, C SW SW sec. 22-22-27. T.D. 1,300 ft.; set 8⅝-in. csg.
Skelly Oil Co. No. 1 B. L. King, C SW SE sec. 32-22-37. T.D. 3,680 ft.; shot with 230 qts.; swabbed 75 bbls.; preparing to pump.
Skelly Oil Co. No. 1 Ella Simms, C SW NE sec. 3-23-37. Location.
Skelly Oil Co. No. 1 A. L. King, C SE NW sec. 4-23-37. T.D. 3,683 ft. Slight showing of oil.
Penrose & Rowan No. 2 Cary, C NE SW sec. 22-22-37. T.D. 1,190 ft. Set 8¼-in. casing.
Sun Oil Co. No. 1 Richards, C NE SE sec. 6-23-37. Drlg. 1,330 ft.
Humble Oil & Refining Co. No. 1 W. B. Farrell, C SW SE sec. 22-22-37. Location.
Tide Water Oil Co. No. 1 A. Walden, C SE NE sec. 21-22-37. Location.

Hobbs Area

Shell Pet. Corp. No. 1 State "E", C E half SE SE sec. 14-18-37. T.D. 4,374 ft.; P.B. 4,178 ft.; shut in.
Sun Oil Co. No. 1 McKinley, SW SW NE sec. 20-18-38. T.D. 4,242 ft.; swabbed 25 bbls. daily for 3 days; to pump.
Gulf Oil Corp. No. 4 North Grimes, SW SW NE SW sec. 21-18-38. Drlg. 3,817 ft.
Continental Oil Co. No. 3-B-13 State, C NE SW sec. 13-18-37. Drlg. 2,282 ft.

Monument Area

Texas Co. No. 2 Saunders, C SW SE sec. 18-19-37. Drlg. 3,343 ft.
Texas Co. No. 1 State "G," C SE SW sec. 19-19-37. Drlg. 3,862 ft.
Oilwell Drlg. Co. No. 1 State "A," C SW NE sec. 29-19-37. Drlg. 3,418 ft. in lime.
Gulf Oil Corp. No. 1 Luthy, C SW NW sec. 29-19-37. Drlg. 2,770 ft.
Amerada Pet. Corp. No. 1 State "O," C NW NE sec. 30-19-37. Drlg. 3,655 ft.
Continental Oil Co. No. 1-C-30 State, C NE NW sec. 30-19-37. T.D. 3,915 ft.; setting csg.
Continental Oil Co. No. 2-C-30 State, C NW SW sec. 30-19-37. T.D. 3,910 ft.; drill pipe stuck.
Amerada Pet. Corp. No. 1 Culp, SW SW SE sec. 31-19-37. Drlg. 3,737 ft.

Anderson & Prichard Oil Corp. No. 1 Britt "A," C SE SW sec. 6-20-37. T.D. 3,819 ft.; set 7-in. csg.

Gulf Oil Corp. No. 2 Graham-State "C," C NW NE sec. 24-19-36. T.D. 4,060 ft.; acidized; flowed 7 B.P.H.; swabbing and testing.

Amerada Pet. No. 1 Weir "A," C NW SW sec. 25-19-36. Swabbed 34 bbls. per hour for 24 hrs. after acidizing; T.D. 4,001 ft.

Skelly Oil Co. No. 1 Christmas, C SW SW sec. 25-19-36. Drlg. 3,617 ft.

Amerada Pet. Corp. No. 3 Weir, C NW SW sec. 35-19-36. Drlg. 3,391 ft.

Shell Pet. Corp. No. 2 State "B," C NW NW sec. 36-19-36. Drlg. 3,690 ft.

Amerada Pet. Corp. No. 3 State "J," C NE SW sec. 2-20-36. T.D. 3,820 ft.; set 7-in. csg.

Continental Oil Co. No. 1-A-3 J. L. Reed, C NE NE sec. 3-20-26. Drlg. 3,755 ft.

Gulf Oil Corp. No. 6 Culp, C NW NE sec. 19-19-37. Drlg. 1,240 ft.

Gulf Oil Corp. No. 2 Graham-State "D," C SE SE sec. 19-19-37. Drlg. 2,000 ft.

Shell Pet. Corp. No. 2 State "D," C NE SE sec. 19-19-37. Drlg. 2,555 ft.

Gulf Oil Corp. No. 1 G. C. Mathews, C SW SE sec. 6-20-37. T.D. 2,385 ft.; set 9⅝-in. csg.

Gulf Oil Corp. No. 1 A. B. Reeves, C NW SW sec. 29-20-37. Wildcat; drlg. 1,210 ft.

Gulf Oil Corp. No. 3 Graham-State "C," C SW NE sec. 24-29-36. Cellar and pits.

Amerada Pet. Corp. No. 4 Weir, C SE NW sec. 35-19-36. Drlg. 3,825 ft.

Sun Oil Co. No. 5 Weir, C SW NE sec. 35-19-36. Drlg. 1,110 ft.

Sun Oil Co. No. 6 Weir, C NW NE sec. 35-19-36. Loc.

Texas Co. No. 2 Mattern, C SW SW sec. 20-19-37. Spudded.

Amerada Pet. Corp. No. 1 State "P," C NW SW sec. 29-19-37. Rig.

Amerada Pet. Corp. No. 1 State "R," C NE SW sec. 29-19-37. Cellar.

Amerada Pet. Corp. No. 2 State "O," C SW NE sec. 30-19-37. Rigging up rotary.

Texas Co. No. 2 Phillips, NE NE NW sec. 6-20-37. T.D. 1,037 ft.; set 10-in. csg.

Amerada Pet. Corp. No. 1 Weir "B," C SW NE sec. 24-19-36. T.D. 2,539 ft.; set 8⅝-in. csg.

Amerada Pet. Corp. No. 2 Phillips, C SE NE sec. 1-20-36. Rigging up.

Amerada Pet. Corp. No. 2 State "H," C NW SE sec. 1-20-36. Rigging up.

Skelly Oil Co. No. 2 State "D," C NE SE sec. 1-20-36. Drlg. 710 ft.

Texas Co. No. 4 State "E," C NE SW sec. 1-20-36. Cellar and pits.

Tide Water Oil Co. No. 1 State "F," C NW NW sec. 20-19-37. Set 13-in. csg.; T.D. 233 ft.

Ohio Oil Co. No. 2 State-Elliott, C NE SE sec. 30-19-37. Cellar.

Continental Oil Co. No. 2-A-6 Britt, C NW SW sec. 6-20-37. Rigging up rotary.

Fred Turner, Jr., No. 1 State "A," NE NW SW sec. 2-20-36. Cellar.

Texas Co. No. 3 Phillips, C SW NW sec. 6-20-37. Loc.

Anderson-Prichard Oil Corp. No. 3 Britt, SE SW NE sec. 7-20-37. Loc.

Sun Oil Co. No. 1 State, C NE NE sec. 25-19-36. Loc.

Anderson-Prichard Oil Corp. No. 1 State, C SW NW sec. 2-20-36. Loc.

Eunice Area

Continental Oil Co. No. 6-B-4 Meyer, C S half SE NW sec. 4-21-36. T.D. 3,375 ft.; set 5½-in. casing.

Continental Oil Co. No. 7-B-4 Meyer, C NW SE sec. 4-21-36. Drlg. 3,660 ft.

Continental Oil Co. No. 8-B-4 Meyer, C SW NE sec. 4-21-36. T.D. 3,780 ft.; S.D.

Gulf Oil Corp. No. 5 Bell-Ramsey-State, C NW NW sec. 4-21-36. Drlg. 250 ft.

Devonian Oil Co. No. 3 State-Heasley, C NE NE sec. 5-21-36. T.D. 3,859 ft. in lime; flowed 9 bbls. per hour through tubing; to acidize.

Gulf Oil Corp. No. 1 Orcutt, C SW SE sec. 5-21-36. T.D. 3,562 ft.; drilled by at 2,670 ft.; cmtd. new hole.

Gulf Oil Corp. No. 2 Orcutt, C NE NE sec. 5-21-36. Drlg. 3,110 ft.

Humble O. & R. Co. No. 2 Adkins, C NE SW sec. 10-21-36. Drlg. 630 ft.

Gulf Oil Corp. No. 2 Bell-State "C," C SW NW sec. 15-21-36. Drlg. 3,240 ft.

Tide Water Oil Co. No. 3 State "D," C NE SE sec. 16-21-36. T.D. 3,504 ft.; flowed 41⅓ bbls. per hour; preparing to acidize.

Gulf Oil Corp. No. 5 Arnott-Ramsey "C," C SE SW sec. 21-21-36. T.D. 3,890 ft.; testing.

Gulf Oil Corp. No. 6 Arnott-Ramsey "C," C NE NW sec. 21-21-36. Drlg. 3,410 ft.

Continental Oil Co. No. 4-B-28 Lockhart, C SW SW sec. 28-21-36. T.D. 3,927 ft.; plugged back to 3,901 ft.; testing.

Continental Oil Co. No. 5-B-28 Lockhart, C NW NE sec. 28-21-36. Drlg. 3,900 ft.

Empire G. & F. Co. No. 2 Felton, C SE NW sec. 28-21-36. T.D. 3,900 ft.; to deepen.

Humble O. & R. Co. No. 9 State "B," C NE SW sec. 29-21-36. Drlg. 3,607 ft.

Continental Oil Co. No. 2-A-30 Lockhart, C NE NE sec. 30-21-36. T.D. 3,983 ft.; flowed 125 bbls. daily, 38 per cent basic sediment and water.

Empire G. & F. Co., No. 4 State "D," C SE NE sec. 32-21-36, five-eighths mile N part of No. 157 lease; T.D. 3,930 ft.; swabbed 12 bbls. per hour after acidizing; reacidized; swabbed 23 bbls.; no increase after second shot; to deepen.

General Crude Oil Co. No. 1 State, C NW SW sec. 32-21-36, one-half mile NW part No. 157 lease. T.D. 3,974 ft.; 3,500 ft. fluid in hole.

Empire O. & R. Co. No. 5 State "D," C NE NW sec. 32-21-36. Rigging up rotary.

Gulf Oil Corp. No. 2 Janda "H," C NE SE sec. 32-21-36. Drlg. 3,091 ft.

Gulf Oil Corp. No. 1 Arnott-Ramsey "D," C NW NW sec. 32-21-36. Drlg. 3,838 ft.

The Texas Co. No. 1 State Aggies, C SE SE sec. 31-20-37, west offset No. 196 lease. T.D. 1,185 ft.; drlg. plug.

Shell Pet. Corp. No. 1 State-Endura "D," C SE NW sec. 11-21-35. T.D. 3,962 ft.; shut down.

Shell Pet. Corp. No. 1 State "H," C SE SE sec. 13-21-36. T.D. 3,904 ft.; flowed 103 bbls. in 24 hours; testing.

Continental Oil Co. No. 4-A-17 Meyer, C NW SW sec. 17-21-36. T.D. 274 ft.; set 10¾-in. csg.

Continental Oil Co. No. 5-A-18 Meyer, C SE NE sec. 18-21-36. Rigging up.

Jim Murray No. 2 Wallace, C NW NW sec. 3-21-36. Drlg. 2,530 ft.

Continental Oil Co. No. 1-B-14 Lockhart, C SW NW sec. 14-21-36. Cellar.

General Crude Oil Co. No. 2 State "E," C NE SW sec. 32-21-36. Bldg. rig.

Shell Pet. Corp. No. 1 State "E," C NE NE sec. 6-21-36. Bldg. rig.

Gulf Oil Corp. No. 1 Janda "C," C NW SW sec. 15-21-36. Drlg. rig.

Tide Water Oil Co. No. 4 State "D," C SE SE sec. 16-21-36. Bldg. rig.

Peerless O. & G. Co. No. 2 State, NE NW SW sec. 29-21-36. Location.

Devonian Oil Co. No. 4 State-Heasley, C SW SW sec. 5-21-36. Location.

Gulf Oil Corp. No. 4 Orcutt, C NW NW sec. 5-21-36. Cellar and pits.

Atlantic Oil Producing Co. No. 1 State "K," C SE SW sec. 6-21-36. Location.

Humble Oil & Refining Co. No. 4 Adkins, C NW SW sec. 10-21-36. Cellar, pits.

NORTHWEST NEW MEXICO

Bernalillo County

Norine Realty Co., Inc., No. 2 Gallegas grant, SE NW NW sec. 19-11n-4e. Drlg. 1,400 ft., sand and gravel.

Guadalupe County

Anton Chico Dev. Co. No. 2 fee, NW NE SW sec. 20-9n-17e. Drlg. 522 ft.

Harding County

Khaay et al No. 1 De Baca, C sec. 19-20n-31e. Running 8¼-in. at 847 ft.; 10-in. at 250 ft.

McKinley County

Seward et al No. 1 State, NE SE SE sec. 2-19n-9w. Drlg. 585 ft. in shale.

Seward et al No. 1 fee, C NW SE sec. 35-20n-9w. S.D. 437 ft. in shale.

Dave Stacey No. 1 State, NE NE SW sec. 21-20n-9w. Drlg. 100 ft.

Forth & Hickerson No. 2 Santa Fe, NE NW NE sec. 29-20-9w. Drlg. 454 ft.; show of oil at 452 ft.

Foster & Clark No. 1 Railroad Land, NE NE NW sec. 29-20-9w. Rigged and ready to spud.

Montrose O. & G. Co. No. 1 State, NE NE sec. 28-20n-9w. Rigging up spudder (first report).

Quay County

Quay County Dev. Co. No. 1 Wallace, SW SW SE sec. 19-9n-32e. S.R. 816 ft.; rainbows at 814 ft.; show of S.W. at 775 ft.

San Juan County

Atchison & Galloway No. 1 Ptd., C SE SE sec. 19-29n-11w. R.U. machine (first report).

Continental Oil Co. No. 53 Tribal, SE SE NW sec. 2-29n-19w. Rig (first report).

W. L. Hair No. 1 Hair, NE NW NE sec. 23-29n-11w. Set 8¼-in. at 112 ft. (first report).

Jack Amenda No. 3, SW NW SW sec. 25-29n-12w. Drlg. 1,275 ft.; show of 32,000 ft. of gas at 935-65 ft.

Jack Amenda No. 4 fee, NW NE SW sec. 25-30n-12w. Drlg. 648 ft. in sand; water at 601-07 and 647 ft.

J. D. Cross et al No. 1 Wilson, SW SW SE sec. 17-30-11w. S.D. 810 ft.

Cross & Pool No. 1 Aztec, sec. 1-30-11w. Making water shutoff at 740 ft.

Nick Spatter No. 1 fee, C NE SW sec. 32-21-11w. S.D. 1,780 ft. in shale.

Southern Union Gas Co. No. 6 Government, C NW NW sec. 19-28-10w. M.I. machine.

San Miguel County

Cabra Springs O. & G. Co. No. 1 Cabra Springs ranch, SW NE NE sec. 22-12n-22e. T.D. 4,045 ft.; prep. to resume.

Sabra Springs O. & G. Co. No. 1 Jones ranch, SW SW SW sec. 31-12n-22e. T.D. 726 ft.; prep. to build standard rig to replace Fort Worth spudder.

Torrance County

45 Pet. Co. No. 1 Greenfield, C NW SW sec. 17-9-8e. Drlg. 1,500 ft.; show of gas.

Bruce Frazier No. 1 Frazier, SE sec. 12-2n-31e. Drlg. 1,575 ft., sd and l.

Adams County

E. M. Butler et al No. 1 Kate Edwards, NW SW NW sec. 15-3s-66w. M.I. portable rotary (first report).

Glenridge Oil Corp. No. 1 Hills, SE SE NE sec. 27-3s-64. Drilled new hole to 4,146 ft. and cmtd. back to 4,100 ft. to stop caving.

Riddle Pet. Co. No. 1 Baxter, C SW sec. 2-3s-6w. S.D. 700 ft. for D.P.

Archuleta County

Wm. E. Hughes Est. No. 4 fee (unsurveyed), CSL SE SE sec. 24-33n-2e. S.D. on top of sand for pipe.

Carl D. Lindstrom No. 1 Crowley, SE SE SE sec. 3-32n-2e. M.I.M. (first report).

Oil City Pet. Co. No. 1-A Garnett, NW NE NW sec. 25-33n-2e. S.D. 1,515 ft.; top Dakota series 1,415 ft.

Oil City Pet. Co. and Archuleta O. & G. Co. No. 1 Reeder, Lot 5 (SW SE SW) sec. 24-33n-2e. Lowered 10-in. csg. to 205 ft.

H. L. Kendrick No. 1 Crowley (unsurveyed), sec. 2-32-1. Drlg. 937 ft. in dry hole.

Baca County

Paul Robb et al No. 7, NW NW NW sec. 24-32-48w. Spd. and S.D.

Cheyenne County

Brittel Oil Co., Inc. No. 1 Steip, C NE NW sec. 26-12s-17. Material on ground; no activity.

Jackson County

Colorado Oil Ref. Co. No. 1 North Park Coal Co., NW NW sec. 18-9n-78w. S.D. 2,200 ft. acct. weather.

Jefferson County

Rainbow Oil Co. No. 1 Johnson, NE sec. 30-4s-68. Drlg.

Ruby Hill O. & G. Co. No. 1 Braden, SE cor. sec. 24-4n-69. S.D. 4,415 ft.

La Plata County

McGarr Pet. Co. No. 1 Pinton Mesa, CSL NE NE sec. 34-35n-12w. S.D. 1,300 ft.

Lincoln County

Consolidated Smelting & Metals Co. No. 1 Hancock, NE NE sec. 7-17s-52. S.D. 1,950 ft.

Morgan County

Swisher et al No. 1 Lunt, 92 ft. W of E line and 360 ft. N of S line, sec. 3-4n-60. T.D. 1,449 ft.; U.R. 4¾-in. at 1,421 ft.

Moffat County

Ohio Oil Co. No. 1 Robertson, C SW SW sec. 3-6n-92w. Location.

Texas Co. No. 7 Knowlton, NE cor. Lot 3, sec. 10-4n-91w. T.D. 4,557 ft.; Sundance at 4,503-57 ft.; swd. 812 bbls. fluid (178 bbls. oil) in 24 hrs.; swabbing and testing.

Montezuma County

McElmo Oil Co. No. 1 West, NE NW NE sec. 21-26n-17w. Contracted with Perry Coon to comp.; T.D. 3,705 ft.; preparing to drill by tools.

Park County

South Park Oil Co. No. 1 State, SE NE SW sec. 16-11s-75w. Drlg. 4,160 ft.

Routt County

Mid-Colo Pet. Co. No. 1 Omoholt, NE SE SE sec. 29-4n-87w. S.D. 2,860 ft. on account of weather.

WYOMING

Albany County

California Co. No. 3 Hoist, 1,650 ft. W of E line and 970 ft. N of S line, sec. 11-17n-77w. T.D. 3,295 ft.; filled back to straighten.

California Co. No. 1 Wilson, NW SW SW sec. 18-17n-76w. R.U.R. to resume at 1,010 ft.

Big Horn County

J. W. Bales No. 1 Parker, C SW SW sec. 23-4-39. S.D. 690 ft. for pipe.

Joan Oil Co. No. 1 Howell, Lot 63 (NW SE NE) sec. 32-55n-97w. Resuming at 1,190 ft.

Peter Evanhoff et al No. 1 McAllister, Lot

GRANT OIL TOOL CO. ANNOUNCES CHANGE IN ITS PERSONNEL

ERWIN BURNS

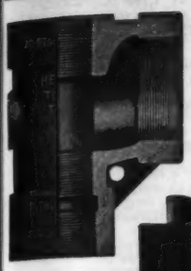
JOHN GRANT

HARRY HESTER

Announcement that Erwin Burns has been made general manager of the Grant Oil Tool Co. is made by John Grant. Mr. Burns recently left the Baash-Ross Tool Co., of which he was general manager, to accept his new position. He has been identified with the oil tool industry for more than 15 years and is considered an authority on the design, operation and manufacture of many classes of oil tools and equipment. He has been active in establishing uniform standards and trade practices.

John Grant left on April 4 for New York, en route to Europe. He will be abroad for two months or more and will visit the head offices of oil companies in London, The Hague, Paris and Rumania. Mrs. Grant accompanied him.

Harry Hester continues as comptroller and credit manager, with headquarters at the office and factory, 2042 East Vernon Avenue, Los Angeles, Calif.



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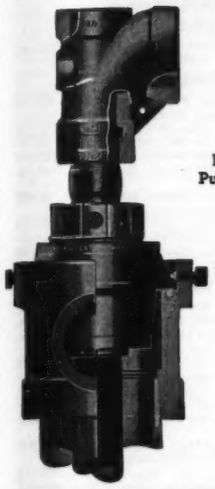

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Hook-Up

HERCULES
Pumping Hook-Up

The HERCULES Pumping Well Hook-up offers many improvements over the equipment generally used for connecting wells for pumping.

The HERCULES Tubing Hanger utilizes "Overhead Packing" to make a seal-tight pack *above* the slips. This permits repacking and adjustment of pressure on the packing without lifting tubing or shutting down the well. Three slips hold tubing securely without pinching.

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HERTOCO

4, NW NE SE sec. 35n-87w. T.D. 2,350 ft.; C.O.

Ohio Oil Co. No. 1 Orson Vail, SW NW NE sec. 23-56n-97w. R.U.R.

Ohio Oil Co. No. 1 Robert Till, C SE SW sec. 24-56n-97w. Drlg. 1,965 ft.

Ohio Oil Co. No. 4 Byron Union, SW SW NE sec. 22-56-97. T.D. 5,735 ft.; Embar 5,587-5,710 ft.; top Tensleep at 5,710 ft.; sat. in top followed by water; P.B. to 5,719 ft.; cutting tubing frozen in cmt.

Montana-Wyoming Oil Co. No. 1 Allen, 270 ft. from N line, 930 ft. from E line, Lot 52 (SE NW SE) sec. 32-56n-97w. T.D. 3,835 ft.; well out of control and on fire.

Peay Oil Co. No. 1 Denio, Tract 43-C, sec. 15-55n-97w. T.D. 3,890 ft.; swabbing to locate water leak in pipe.

J. H. Shaffer No. 1 Keachie, C SW SW sec. 5-49-61. T.D. 1,450 ft.; sidetracking tools at 1,366 ft.

Stock Oil Co. No. 1 Yates, CSL SW NE sec. 23-56n-97w. M.I. rotary equip.

W. O. Taylor et al No. 1 Hoskins, Lot 5 (SE SE) sec. 25-56n-97w. T.D. 5,270 ft.; cg. at 5,210 ft. in new hole.

Campbell County

G. J. Sherin et al No. 1 Rhodes, NE SE C sec. 24-49n-74w. Derrick up; sump and reservoir completed (cor. loc.).

Carbon County

General Pet. Corp. No. 1 Union Pacific, SW NW sec. 5-19n-83w. R.U.R.; drlg. W.W. at 160 ft.

Ohio Oil Co. and California Co. No. 2 Union Pacific, C NE NE sec. 35-21n-79w. Drlg. 1,450 ft.

Ohio Oil Co. and California Co. No. 3 Union Pacific, C NE SE sec. 23-21n-79w. Stdg. rigged.

Ohio Oil Co. No. 1 State, SE SE NE sec. 34-20n-78w. T.D. 3,290 ft.; top Sundance 3,230 ft.; 4½-in. liner cmtd. at 3,220 ft.; drlg. plug.

Ohio Oil Co. No. 9 H. & C., SW SW SW sec. 35-20n-78w. T.D. 3,102 ft.; fshg. out liner.

Ohio Oil Co. No. 1 Dixon, NE NE SE sec. 34-20n-78w. O.W.D.D. from 2,934 ft.; R.U. (first report).

Ohio Oil Co. No. 2 Dixon, SE NE SE sec. 34-20n-78w. R.U. to deepen old well from 3,094 ft. to the Sundance.

Union Oil Co. of California and Mutual Oil Synd. No. 1 Union Pacific, 1,890 ft. from E line and 1,320 ft. from S line, sec. 1-18-78w. S.D. 4,440 ft.

Converse County

John Ackert No. 1 Daniels, SW SW NE sec. 17-32-71. S.D. 4,004 ft.

Fremont County

Earl W. Reader and associates are reported to have completed blocking up 80,000 acres in Townships 26 and 27 north, Ranges 91, 92, 93 and 94 west in the southeastern corner of Fremont County and the northeastern corner of Sweetwater County. Included in the acreage in addition to state land and fee land are federal leases acquired under the O'Mahoney-Greever amendment to the oil leasing act which provides for the leasing of federal land instead of the old form of prospecting permits. The block is to the northwest and west of the Lost Soldier field and east of the Buffalo Basin structure where the old Prairie Oil & Gas Co. did considerable exploration work a number of years ago. It is reported that the block will be turned to a major company for prospecting.

Hot Springs County

California Exploration Co. No. 2 Government, NW SW NW sec. 4-44-96. T.D. 4,325 ft.; 6⅝-in. at 4,137 ft.; setting bridges to locate water.

Ohio Oil Co. No. 73 Mill Iron Cattle Co., NE SW SE sec. 19-4n-98w. Digging mud pits.

Stanolind O. & G. Co. No. 20 State-Ridgely, SE NE SE sec. 19-46n-98w. T.D. 3,531 ft.; top Embar 3,905 ft.; 6⅝-in. cmtd. 3,913 ft.; W.O.C.

Lincoln County

Senrab Oil Corp. No. 3 Government, CSL SE NW sec. 10-26n-113w. S.D. 1,020 ft.

Natrona County

Empire State Oil Co. No. 15, NW SE NE sec. 11-33n-83w. Drlg. 1,250 ft.

Niobrara County

An important test of the Sundance horizon to the southwest of the proven area in that horizon in Lance Creek field will be drilled on the Thompson lease in section 7-35-65 by the J. M. Huber Corp. and the MacKinnie Oil & Drilling Co. A deal has been closed whereby the MacKinnie company acquired the Thompson lease consisting of the E half of the W half and W half of the E half of section 7. A 50 per cent interest was assigned to the Huber corporation under an agreement to start a well by May 1, location of which has not yet been released. The Texas Co. drilled a dry hole to the Dakota in the NE NW NE section 7, in the earlier development before production was found in the Sundance and the Continental Oil Co. drilled in a producer in the NE NE of the section. The Texas Co. test is on approximately the same contour as the Ohio Oil Co. No. 4 Putnam in section 33-36-65, which came in as a good well in the Sundance a few months ago. O. H. Shoup, former governor of Colorado and a former president of the Midwest Oil Co., is head of the MacKinnie company.

The next completion in the Sundance in Lance Creek will be the Argo Oil Co. No. 6 Elliott, which topped the Sundance at 3,866 feet and drilled to 3,904 feet. It showed good saturation in the cores and will be completed as soon as cement sets.

Argo Oil Co. No. 7 Elliott, C NE NW sec. 5-35n-65w. Drlg. 2,220 ft.

Argo Oil Co. No. 6 Elliott, C SE NW sec. 5-35n-63w. T.D. 3,904 ft.; top lower Sundance 3,866 ft.; 7-in. cmtd. at 3,864 ft.; W.O.C.

Black Hills Ref. Co. No. 1 Mills Est., C SW NW sec. 27-36n-64w. Spudded and S.D. account of weather.

Continental Oil Co. No. 6 Rohlff, C SW SW sec. 32-36n-65w. Loc. (first report).

Continental Oil Co. No. 4 Joss, 90 ft. E of C SW NE sec. 6-35n-65w. Loc. (first report).

J. H. Huber Co. No. 1 Jones, NE SE NW sec. 6-25n-65w. T.D. 4,096 ft.; P.B. to 4,032 ft.; running 2-in. tubing and R.U. for pump test.

Ohio Oil Co. No. 3 Agnes Rohlff, C SE NE sec. 32-36n-65w. Drlg. 2,900 ft.

Ohio Oil Co. No. 5 Converse Sheep, C SE SW sec. 32-36n-65w. Coring at 3,510 ft.; top Sundance 3,493 ft.

Ohio Oil Co. No. 3 Richards & Comstock, C NE SW sec. 32-36n-65w. Spudding.

S. & H. Dev. Co. No. 1-A Olinger, SE NE NW sec. 1-36-63. S.D. 1,674 ft.

Sheridan County

Beaver Creek Oil Co. No. 1 Allison, SW SE sec. 15-55n-85w. T.D. 3,050 ft.; fshg. lost joint 4½-in.

Uinta County

Bridger Basin Oil Co. No. 1-B, NW NW SW sec. 10-14n-118w. Resumed at 1,000 ft. (formerly Pacific Oil Co.).

Intermountain Pet. Corp. of Utah No. 1 Union Pacific-zayes, SW NW SW sec. 24-19n-118w. Drlg. 1,575 ft.

W. D. Marshall No. 1 Government, NW SW SE sec. 12-15n-118w. S.D. 1,260 ft.

Washakie County

Ariton & Doyle No. 1 Government, SW SW SE sec. 29-48-91w. S.D. 1,115 ft.

Wyoming O. & G. Co. No. 2 Government, SW SW SW sec. 31-48-90. T.D. 1,404 ft. (cor.); fsg. for tools.

Weston County

Conway Oil Corp. No. 1, SE SE NE sec. 7-41n-60. Fsg. for tools at 2,087 ft.

Des Moines-Osage Oil Co. No. 12, C NE NE sec. 25-46n-62w. Sand at 1,418-43 ft.; showing oil; not shot or tested.

H. D. Wiltse No. 9, NW NW NE sec. 17-46n-63w. Rig on loc. (first report).

Henry Egert No. 3, SW NW SE sec. 8-46n-63w. Rig on loc. (first report).

MONTANA

Montana production in February was 335,878 bbls., as reported by the Oil Conservation Board, which compares with 391,241 bbls. in January, a decrease of 55,363 bbls. Production by fields in February was as follows:

Kevin and Border	80,868
Cut Bank	206,730
Cat Creek	17,853
Pondera	26,409
All others	4,018
Total	335,878

Oil in storage at the end of February was 1,277,526 bbls., which compares with 1,154,007 bbls. at the end of January, an increase of 123,519 bbls. Oil refined in Montana in February was 142,510 bbls., which compares with 176,060 bbls. in January. Exports to Canada were 67,723 bbls.

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in February and 105,023 bbls. in January.

Big Horn County

Daniels Pet. Co. No. 1 May, C SE SE sec. 13-1s-33e. T.D. 3,000 ft.; fsg. tools.

Fallon County

Montana-Dakota Utilities Co. No. 1, NE NW sec. 17-3n-62e. Coring at 4,342 ft. in anhydrite and lime.

Fergus County

Two completions and two new operations were reported in Fergus County.

The Judith Operating Co. No. 1 Government, C SW SW section 26-22n-17e, in the Winifred district, was completed for 260,000 feet of gas per day at 930 feet after plugging back from 1,055 feet. Its No. 2 will be drilled half a mile to the southeast.

H. C. Rowland No. 2 Government, SW SW NE section 13-17n-23e, Black Butte district, was abandoned at 760 feet in the Kootenai. No. 3 will be drilled 1 mile to the east.

Minnesota Co. No. 1 Fenholt, SE NW SW sec. 24-21n-15e. Drlg. 1,055 ft.
Judith Operating Co. No. 2 Government, CWL NW NE sec. 35-22n-17e. Spudding 25 ft. (first report).
H. C. Rowland No. 3 Government, CEL NE SW sec. 13-17n-24e. Spudding 50 ft. (first report).
Kalispel-Kevin Oil Co. No. 2 Emmons, C SW SE sec. 20-21-15e. Drlg. 576 ft.

Glacier County

The Cut Bank field is rapidly getting into its stride for the 1936 drilling campaign although subzero weather was reported the past week. There are 25 wells drilling, exclusive of locations and rigs. L. B. (Tip) O'Neil, president of the Santa Rita Oil & Gas Co., one of the principal operators in the field, estimates that 145 wells will be drilled this year as against 90 last year. Most of the wells in the field are drilled by contract. Last year most of the drilling was with cable tools, although there were some rotaries operating. This year it is expected that at least 50 per cent of the wells will be drilled with rotaries. The average cost of drilling and completing wells ranges from $22,000 to $25,000, so it is apparent that this year's campaign will call for expenditures of better than $3,000,000.

The increase in the number of wells to be drilled this year is due in part to the sale last fall of 25 tracts of Blackfeet Indian leases on the south, southwest and west of the proven area, comprising a total of 1,494 acres. The requirements for the drilling of one well on each tract within 90 days were waived in the fall due to the approach of winter when most drilling activities are suspended, especially on wildcats and semiwildcats. The drilling of these required wells is now getting under way. The leases also provide for the drilling out of the tracts by at least two wells annually. The opening of this area to development accounts for most of the increase in drilling this year as otherwise the development of new production would be held down to a minimum.

The finding of a market for the oil is causing some concern. Most of the crude goes to Canada and the price at present is $1.50 per barrel. This probably is the highest price paid in this country for oil of the Cut Bank grade and is due largely to the field's geographical location and the freight rate protection as against crude from more distant fields. Storage in the field has been increasing since last September on account of seasonal conditions which restrict the Canadian market. Last September there were 166,246 bbls. of Cut Bank crude in storage and at the end of February this had increased to 433,893 bbls. Exports to Canada in the same period decreased from 263,971 bbls. in September to 56,451 bbls. in February. Exports are now beginning to reflect the coming of the summer consumer demand.

Three wells were completed in Cut Bank the past week. Two of these were of especial interest since they are located to the east and southeast of the Santa Rita Oil & Gas Co. No. 1 Lander, in section 16-35-6w, which several months ago came in for 800 bbls. a day in the Sunburst sand, a horizon above the Cut Bank sands from which comparatively little oil is recovered. No. 1 Lander increased to 2,000 bbls. a day natural. It is the farthest west of any well in the field and whether it opens a new pool in the Sunburst horizon or is a freak well will be determined by additional drilling. The Santa Rita No. 6 Tribal, 1,300 feet east of the Lander well, had only sandy shale at 2,810-30 feet, where the Sunburst was expected, but drilled on down to 2,944 feet and will make a good producer in the Cut Bank. It has 2,100 feet of oil in the hole from the pay at 2,884-2,938 feet, but has not been tested. The 7-inch was cemented at 2,576 feet. The top of the Cut Bank was at 2,875 feet. The location of this well is 660 feet south of the center of the west section line, section 15-35-6w.

The other completion in this district is the Texas Co. No. 5 fee, on the line between sections 15 and 16, and 1,320 feet south of Santa Rita No. 6 Tribal. This well also missed the big production in the Sunburst and was dry in that sand at 2,781-88 feet, but made a good well in the Cut Bank sand. The pay was at 2,840-61 and 2,864-88 feet and total depth 2,897 feet. It swabbed 218 bbls. first 15 hours. Santa Rita No. 7 Tribal, a near completion, will show whether the Sunburst sand pool extends to the north.

The other completion was R. C. Tarrant No. 2 State, C NE SE section 36-34-6w, which is a doubtful well, having 150 feet of fluid standing in the hole from sand at 2,896-2,906 feet with a total depth of 2,920 feet. It has not been tested.

Anderson et al No. 3 Anderson, NE SW NW sec. 26-35n-6w. Colo. 490 ft.; 10-in. 520 ft.; W.O.C.
A. B. Cobb No. 5 Walberger, C NE NE sec. 35-36n-6w. Rig.
Cobb-Pardee No. 1 Stufft, C SE NW sec. 25-36n-6w. S.D. 2,160 ft.
A. E. Crumley No. 1 Tribal, C SW SE sec. 21-33n-5w. Drlg. 1,525 ft.
Dakota-Montana Oil Co. No. 4 Winkler, SW NE NW sec. 36-35n-6w. Standing rigged.
Gardner et al No. 1 Cole, C NE SW sec. 2-32n-6w. Drlg. 1,875 ft.
Goodman Oil Co. No. 1 Tribal, SW NW SW sec. 25-33n-6w. S.D. 100 ft.
B. V. Hole No. 1 Tribal, C NW SW sec. 33n-6w. Cellar (first report).
L. P. Jackson et al No. 1 Tribal, NW SE NW sec. 23-34n-7w. Spd. to 110 ft. and S.D.
R. C. Jeffries No. 4 Lukens, NE NE NE sec. 12-32n-6w. T.D. 2,610 ft.; C.O. 2,200 ft.
Montana Headlight Oil Co. No. 3 Gritton, NE NE SE sec. 11-34n-6w. Spdg. 130 ft.
Montana Power Gas Co. No. 1 Eisler, 900 ft. WE and 1,980 ft. NS sec. 5-32n-5w. Drlg. 2,310 ft.
Montana Power Gas Co. No. 2 Coburn, C NW NE sec. 8-33n-5w. Drlg. 2,700 ft.
Nadeau Bros. No. 1 Tribal, C Lot 4, sec. 6-32n-5w. Drlg. 2,920 ft.
P. Oil Co. No. 6 Haines, NE SW NE sec. 2-34n-6w. Drlg. 1,760 ft.
Santa Rita O. & G. Co. No. 7 Tribal, 1,980 ft. S of N line, 1,320 ft. W of E line, sec. 16-35n-6w. Drlg. 2,343 ft.
Santa Rita O. & G. Co. No. 1 Shearon, 660 ft. S of N line and 349 ft. W of E line, sec. 34-36n-6w. T.D. 3,092 ft.; cmtd. off 420 ft. of 7-in. at 2,790 ft.; W.O.C.
Santa Rita O. & G. Co. No. 1 Corey, NE NW SE sec. 5-32n-5w. S.D. 2,959 ft. for spudder.
Santa Rita O. & G. Co. No. 1 Barrington, SE SW NW sec. 34-33n-6w. Drlg. 345 ft.
Neil Spencer No. 2 Tweedy, 925 ft. NS line, 1,980 ft. WE line, sec. 25-33n-4w. Stdg. rigged.
R. C. Tarrant No. 6 Britton, C SE SW sec. 12-34n-6w. S.D.; rig.
R. C. Tarrant No. 3 State, C NE SE sec. 36-35n-6w. Drlg. 2,485 ft.
R. C. Tarrant No. 7 Haglund, Jr., C SW SW sec. 13-34n-6w. Drlg. 2,260 ft.
R. C. Tarrant No. 2 Reikhoff, SE NE SE sec. 2-34n-6w. Spdg.
Texas Co. No. 1 Marie Jones, C NW SW sec. 6-33n-5w. Drlg. 1,755 ft.
Texas Co. No. 1 Walker, C NE NE sec. 2-35n-6w. T.D. 2,945 ft.; C.O.
Texas Co. No. 1-B Tribal, Lot 4, 1,300 ft. from W line, 200 ft. from S line, sec. 2-32n-5w. Drlg. 2,365 ft.
Texas Co. No. 1-A Tribal, C SW NE sec. 36-33n-6w. Drlg. 320 ft.
Whetstone et al No. 1 Tribal, C SE NW sec. 36-32n-6w. Drlg. 595 ft.; 10-in. cmtd. 575 ft.
Wilkinson et al No. 1 Tribal Tr. 127, C NE NE sec. 1-32n-6w. Cellar (first report).

Petroleum County

West Dome Oil Co. No. 1, SW SE NE sec. 9-15n-29e. Drlg. 1,293 ft.; first Cat Creek at 1,240-88 ft (est. 5 bbls.), cased off with 5 3/16-in. at 1,290 ft.

Judith Basin County

Fletcher E. Hunt No. 3, NW SE NE sec. 30-14n-15w. Drlg. 431 ft.

Pondera County

Wm. M. Fulton No. 1 Price, SW NE NE sec. 18-27-4w. Drlg. 1,918 ft.
Norden Corp., Ltd., No. 1 Hollan, NW SW NW sec. 12-28-6w. Resuming at 583 ft.
Warren Hastings No. 2 Erickson, NW SW NW sec. 10-27n-4w. Rigging (first report).
Texas Co. No. 1 Valier Unit No. 1, C NW SE sec. 32-31n-5w. R.U.
Gordon Campbell No. 1 Hughes, NW NE NW sec. 12-30n-4w. M.I.M.
Jones-Chambers No. 1 Erickson, SW SE SW sec. 3-27n-4w. Loc. (first report).

Toole County

A. E. Crumley No. 3 Shaw, SE NW SE sec. 35-36n-2w. T.D. 1,010 ft.; running 8¼-in.
Agen & Goeddertz No. 1, C SE NE sec. 16-35n-3w. Loc. (first report).
Big West Oil Co. No. 1 Dalquist, SW NE NW sec. 21-35n-3w. Loc. (first report).
Carscallen & Mitchener No. 1 Krueger, 1,320 ft. W of E line, 1,980 ft. S of N line, sec. 10-34n-2w . T.D. 1,650 ft.; prep. to acidize.
Coolidge & Coolidge No. 1 State, NW NW NW sec. 36-36n-2w. Stdg. rigged.
Continental Oil Co. No. 7 State, SE NE NE sec. 16-35n-2w. Loc. (first report).
Continental Oil Co. No. 8 State, NE SE NE sec. 16-35n-2w. Loc. (first report).
Continental Oil Co. No. 9 State, SE SW NE sec. 16-35n-2w. Loc. (first report).
Monopeg Oils, Ltd., No. 3 Dipple, CEL SW NW sec. 28-35n-1w. T.D. 1,450 ft.; R.U. to drill in.
Burt Smith No. 1 Engel, SE SE NE sec. 2-35n-3w. R.U.
Welch Bros. No. 1 Dewald, SW NE NE 26-35n-2w. M.I.R. (first report).

UTAH

Grand County

Columbia Crude Co. No. 1 Rath, SW SE

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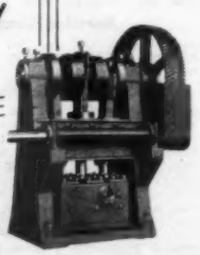
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sec. 12-35n-20e. Rmg. 15¼-in. to bottom at 148 ft.
Utah Southern Oil Co. No. 1 Hyde, SE NW NW sec. 33-22n-22e. Drlg. 4,100 ft.
Glenn Ruby et al No. 1 State, NE SE SE sec. 34-31s-16e. Drlg. 1,600 ft. in Windgate sd.

Southwest Texas Fields

(Continued from Page 178)

making 10,000,000 feet per day. All of the oil producers were good wells ranging in initial production up to 700 bbls. per day. The O'Hern field also in Webb County gained three new producers and several new locations.

Balcones Fault Zone

The southwest portion of the Balcones Fault Line zone is more active at present than at any time recently. The drilling in the Pearsall field, Frio County and the beginning of three wildcat tests in Zavalla County account for most of the activity. LaSalle County is getting under way with two tests, the first drilling in that county in several months. Amerada Petroleum Corp. is completing three wells in the Pearsall field. The Correy and McWilliams tests on tracts 3 and 17 were shot and swabbing with shows of oil during the week. Both are bottomed in the Austin Chalk. Thornton Davis No. 1 Halff & Oppenheimer is also being completed and was being cleaned at the latest report after being shot.

Possibility of production in McMullen County was seen during the week when Magnolia Petroleum Co. No. 2 Kincaid in Survey 86 tested gas at 1,810-22 feet showing 500 pounds pressure in six minutes with an odor of oil. The test was below 1,900 feet at the latest report.

West Texas Fields

(Continued from Page 180)

feet. Tannehill and others No. 29 Matthews, total depth 815 feet, 1,000,000 feet of gas. Walker No. 7 Davis, dry and abandoned at 598 feet. White and Duncan No. 1 Morris and Buie, total depth 1,594 feet, 285 bbls. Wickman and others No. 1 Green, total depth 919 feet, plugged back to 917 feet, 8 bbls. Wood and Hansley No. 1 Cook, dry and abandoned at 1,303 feet.

Stephens County

Michales and others No. 2 Whitney, dry and abandoned at 2,150 feet. Heflin No. 1 Jackson, total depth 1,735 feet, 750,000 feet of gas. Lone Star Gas Co. No. 1 Vaughan, total depth 375 feet, 1,000,000 feet of gas. Hamilton and others No. 1 McNoy, dry and abandoned at 2,003 feet. Jarvis and others No. 1 Williams, temporarily abandoned at 975 feet.

NORTH TEXAS COMPLETIONS

Completions in the North Texas fields, with their top of sand and total depth records and initial production were as follows:

Archer County

Burns & Burns No. 3 Wilson Y, dry 625 feet. Cable Oil Co. No. 9 J. L. Webb, 685-701 feet, 20 bbls. C. B. Christie and others No. 1 Wilson, 1,609-1,612 feet, 175 bbls. B. Cochburn No. 12 R. J. Andrews, 1,379-1,398 feet, 35 bbls. Fain-McGaha No. 7 Morrison, 1,300-1,330 feet, 25 bbls. J. C. Hamer No. 1 Archer County fee, dry 1,001 feet. Hamilton Petroleum Co. No. 31 Abercrombie, 1,161-1,163 feet, 25 bbls.; No. 33, 1,181-1,190½ feet, 50 bbls.; No. 12 Ikard A, 1,140-1,150 feet, 80 bbls. Arthur Holtson No. 1 J. T. Dempsey, dry 1,202 feet. Huggins Oil Co. No. 12 H. Ford, 990-1,004 feet, 10 bbls. Kimbell & Bohner, 1,044-1,064 feet, 60 bbls. C. B. Long No. 1 Turbeville A, dry 1,566 feet. Texas Co. No. 1 Mrs. T. A. Mathews, dry 1,452 feet.

Baylor County

Ray & Staniforth No. 44 W. H. Portwood C, 1,352-1,359 feet, 250 bbls.

Cooke County

T. P. Frost No. 3 John Rohmer, 808-840 feet, 25 bbls. Harrison & Dillard No. 3 R. W. Trew, 1,186-1,234 feet, 125 bbls. Hoover and others No. 1 Cartwright, dry 1,916 feet. Hudspeth and others No. 4 Truebenbach B, 932-937 feet, 70 bbls. Kingery Brothers No. 1 Meador, dry 1,780 feet. Charles Newsom and others No. 1 Theo Wiseman, dry 1,803 feet. Seitz Brothers No. 5 A. W. Trew A, 1,072-1,085 feet, 90 bbls. Texas Co. No. 2 M. Kessler, 840-890 feet, 18 bbls.

Jack County

Buttram Petroleum Co. No. 4 Cullers, 2,089-2,095 feet, 25 bbls. Wright and others No. 1 Mary N. Brown, dry 424 feet. M. Yell No. 2 Brannon, dry 304 feet.

Montague County

Carter and Rycade No. 18 Cunningham, 892-925 feet, 10 bbls. Continental Oil Co. No. 2 Dodgin, 1,739-1,781 feet, 168 bbls. Texas Co. No. 9 Cunningham A, 916-937 feet, 45 bbls.

Wichita County

Bourbon Royalty Co. No. 3 J. A. Watkins, 428-464 feet, 2 bbls. Douglas Production Co. No. 20 Douglas E, 896-924 feet, 5 bbls. A. Holtson No. 1 J. L. Jackson, 632-714 feet, 6 bbls. T. F. Hunter No. 1 Gibson, dry 2,142 feet, Texas Co. No. 73 Honaker, 985-1,064 feet, 31 bbls.; No. 424 W. T. Waggoner A, 1,099-1,111 feet, 70 bbls.

Wilbarger County

Fain-McGaha No. 7 Waggoner Y, junked 2,425 feet. W. B. Hamilton No. 1 Waggoner B, dry 1,569 feet.

Young County

Duncan and others No. 6 Benson A, 898-912 feet, 90 bbls.; No. 7 Benson, dry 932 feet. W. F. Hamilton No. 11 Jeffery, 837-844 feet, 75 bbls. Jack Harris No. 1 J. H. Newman, dry 542 feet. L. V. Hull No. 1 Street, dry 1,302 feet. C. E. Knox No. 1 Washam, 2,663-2,683 feet, 130 bbls. Kriss & Alexander No. 2 Belknap, dry 732 feet. Solo Oil Co. No. 6 O. B. Stowe, 1,052-1,066 feet, 150 bbls. Underwood Oil Corporation No. 14 Campbell A, 870-884 feet, 135 bbls. Underwood & Campbell No. 1 Campbell E, 864-884 feet, 50 bbls. R. J. Watson No. 1 C. E. Maldgen, dry 676 feet.

Michigan Fields

(Continued from Page 183)

other in Kent County, were near completion in the Traverse and Dundee formations at the close of last week.

Lentz & Miller, of Muskegon, were treating the Northern Development Co. No. 1 Fred Burke and others, SW SE NW section 26-17n-15w, Logan Township, Mason County, in the upper Traverse at 1,942 feet Saturday. It was to be opened for a test of possible production.

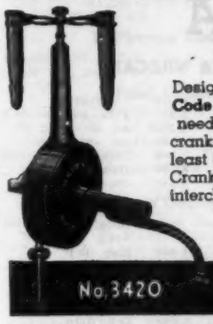
Jacob Bolema, of Muskegon, last week started three new western Michigan tests, one in Casnovia Township, Muskegon County, and two in Manistee Township and County.

Wildcats

Wallace Markle No. 1 Frank Opaka, NE NE SE section 4-15n-11e, Grant Township, Huron County, which reported a show of oil in the Dundee three weeks ago, was still drilling at 2,880 feet, or 76 feet in the lime, without commercial success.

Miller Brothers No. 1 Mae Ryan, NW SE NE section 22-9n-1w, Elba Township, Gratiot County, was still swabbing with operators undecided whether to complete for production or drill deeper.

Frank C. Cheers No. 1 Dr. G. Wilson, NE NW NE section 34-6n-3e, Shiawassee Township and County, was cased at 1,920 feet and soon to be drilled into the Dundee.



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WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well and location:	S.T.R.	Depth	Status
Shell Oil Co., No. 11 Capitan, Santa Barbara Co.	32- 4-30	2,922	P.B. 2,789
Shell Oil Co., No. 12 Capitan, Santa Barbara Co.	32- 4-30	2,554	sd. sh. drlg.
Honolulu Oil Corp., No. 9 Elwood, Santa Barbara Co.	tideland	6,720	sd. sh. drlg.
Barnsdall-Rio Grande, No. 9-B Elwood, Santa Barbara	tideland	3,549	cleaning out
Barnsdall-Rio Grande, No. 12 Elwood, Santa Barbara	15- 4-29	8,506	fish. D.P.
Pacific Western Oil Co., No. 4 Elwood, Santa Barbara	tideland	3,684	cmtd. 3,683
Signal Oil Co., No. 7 Elwood, Santa Barbara Co.	tideland	3,757	cmtd. 3,682
Spalding, Caroline, No. 13 Elwood, Santa Barbara Co.	tideland	....	foundation
York Oil Co., No. 3 Lompoc, Santa Barbara Co.	33- 8-34	....	bldg. rig
Union Oil Co., No. 16 Orcutt, Santa Barbara Co.	26- 9-34	....	bldg. rig
Fairview Oil Co., No. 1 Purisima, Santa Barbara Co.	18- 7-34	4,060	fish. D.P.
Santa Barbara Oil, No. 1 Carpinteria, Santa Barbara	29- 4-25	2,290	P.B. 1,950
Carnero & Dietzman, No. 1 Carpinteria, Santa Barbara	8- 4-25	461	sd. sh. drlg.
Bankline Oil Co., No. 1 Coal Oil Pt., Santa Barbara Co.	tideland	5,510	cleaning out
Union Oil Co., No. 1 Sudden, Santa Barbara Co.	10- 5-35	1,912	sd. sh. drlg.
Calco Pet. Co., No. 1 Las Posas, Ventura Co.	17- 3-20	2,898	O.S. drlg.
Union Oil Co., No. 10 Bardsdale, Ventura Co.	12- 3-20	6,075	O.S. drlg.
Duke Oil Co., No. 1 Bardsdale, Ventura Co.	7- 3-19	3,497	sd. sh. drlg.
Bankline Oil Co., No. 1 Sespe, Ventura Co.	36- 5-20	2,387	rd. sh. drlg.
Ivers, H. A., No. 12 Sespe, Ventura Co.	1- 4-20	1,770	hd. sd. drlg.
Wasibi Oil Co., No. 1 Sespe, Ventura Co.	33- 5-19	....	rigging up
Laing & Jacobs, No. 1 Shiells Canyon, Ventura Co.	32- 4-19	1,275	sidetracking
El Rancho Oil Co., No. 1 Shiells Canyon, Ventura Co.	9- 3-19	4,041	cleaning out
Destco Pet. Co., No. 1 Shiells Canyon, Ventura Co.	3- 3-19	418	cmtd. 331
Bankline Oil Co., No. 1 Shiells Canyon, Ventura Co.	3- 3-19	4,074	redrlg. 3,697
Petroleum Securities, No. 1 Shiells Canyon, Ventura Co.	3- 3-19	602	sd. sh. drlg.
The Texas Co., No. 129 Shiells Canyon, Ventura Co.	4- 3-19	4,650	sd. sh. drlg.
Hull, James, No. 1 Santa Susana, Ventura Co.	2- 2-18	1,680	sd. sh. drlg.
Bolsa Chica Oil Co., No. 3 Temescal, Ventura Co.	4- 4-18	1,000	br. sh. drlg.
Johnson, R. P., No. 1 Temescal, Ventura Co.	21- 4-18	782	sd. sh. drlg.
General Pet. Corp., No. 2 Oxnard, Ventura Co.	26- 2-22	5,059	sd. sh. drlg.
Rincon Oil Co., No. 3 Rincon, Ventura Co.	tideland	952	P.B. 200
Continental Oil Co., No. 5 San Miguelito, Ventura Co.	24- 3-24	....	rigged up
Standard Oil Co., No. 1 Lost Hills, Kern Co.	2-26-20	6,314	redrlg. 5,952
Richfield Oil Co., No. 2 Devil's Den, Kern Co.	14-25-18	2,501	will deepen
Cumberland Oil Co., No. 1 Devil's Den, Kern Co.	17-26-18	4,700	sd. sh. drlg.
Beimac Drlg. Co., No. 1 McKittrick, Kern Co.	22-29-21	4,797	fish. D.P.
Calcrude Pet. Co., No. 1 McKittrick, Kern Co.	34-30-22	....	rigging up
Franco-Western Oil Co., No. 12 McKittrick, Kern Co.	8-30-22	2,265	cmtd. 2,200
Bergman Oil Co., No. 1 McKittrick, Kern Co.	32-29-22	....	rigged up
Milburn, J. H., No. 1 McKittrick, Kern Co.	35-29-21	1,932	sd. sh. drlg.
Weiport Oil Co., No. 14 McKittrick, Kern Co.	26-29-21	....	rigging up
Standard Oil Co., No. 4 North Belridge, Kern Co.	16-27-20	5,574	br. sh. drlg.
Belridge Oil Co., No. 18-35 North Belridge, Kern Co.	35-27-20	5,383	cmtd. 5,351
Belridge Oil Co., No. 6-1 North Belridge, Kern Co.	1-28-28	7,970	hd. sh. drlg.
Belridge Oil Co., No. 17-35 North Belridge, Kern Co.	35-27-20	5,275	sd. sh. drlg.
Union Oil Co., No. 20 North Belridge, Kern Co.	36-27-20	9,492	P.B. 9,340
Union Oil Co., No. 21 North Belridge, Kern Co.	36-27-20	4,000	sd. sh. drlg.
Continental Oil Co., No. 7 North Belridge, Kern Co.	36-27-20	6,696	sd. sh. drlg.
Alford, J. W., No. 1 Delano, Kern Co.	14-25-27	2,440	cleaning out
C. C. M. Oil Co., No. 15 Kern Front, Kern Co.	23-28-27	2,180	pump. 175 b.d.
Republic Pet. Co., No. 8 Kern Front, Kern Co.	11-28-27	1,981	cmtd. 1,860
Republic Pet. Co., No. 9 Kern Front, Kern Co.	24-28-27	1,927	cmtd. 1,884
L. & H. Prop., Inc., No. 1 Kern Front, Kern Co.	13-28-27	....	bldg. rig
General Pet. Corp., No. 5 Kern Front, Kern Co.	14-28-27	2,157	test. W.S.O.
Kern River Oilfields, No. 7 Kern Front, Kern Co.	25-28-27	1,965	sd. sh. drlg.
Associated Oil Co., No. 6 Kern Front, Kern Co.	4-28-27	2,840	P.B. 2,747
Standard Oil Co., No. 11 Kern Front, Kern Co.	5-28-27	2,710	pump. 80 b.d.
Standard Oil Co., No. 12 Kern Front, Kern Co.	5-28-27	....	bldg. rig
Standard Oil Co., No. 13 Kern Front, Kern Co.	24-28-27	1,700	sd. sh. drlg.
The Texas Co., No. 15 Kern Front, Kern Co.	23-28-27	1,976	sd. sh. drlg.
Ausbrit Oil Co., No. 1 Premier, Kern Co.	20-27-27	2,139	cleaning out
Falcon Oil Co., No. 1 Dominion, Kern Co.	27-26-28	843	sd. sh. drlg.
Santa Clara Oil Co., No. 1 Mount Poso, Kern Co.	7-26-28	1,660	cleaning out
McMahan, Hugh, No. 1 Mount Poso, Kern Co.	27-26-28	1,581	fish. D.P.
Vanguard Oil Co., No. 4 Mount Poso, Kern Co.	33-27-28	1,703	redrlg. 696
Cal-Coast-Apex Oil Co., No. 1 Mount Poso, Kern Co.	36-26-27	371	sd. drlg.
Poso Pet. Co., No. 1 Mount Poso, Kern Co.	2-27-27	1,420	sd. sh. drlg.
Santa Anita Oil Co., No. 1 Mount Poso, Kern Co.	11-27-27	530	sd. sh. drlg.
Union Oil Co., No. 1 Poso Outpost, Kern Co.	34-27-28	....	rigging up
Woods & Bailey, No. 1 McFarland, Kern Co.	16-26-26	2,390	sd. sh. drlg.
Moschbach Oil Co., No. 1 Fruitvale, Kern Co.	21-29-27	....	rigging up
Mayo, Luther, No. 1 Fruitvale, Kern Co.	21-29-27	4,698	C.P. 2,885
Magnet Oil Co., No. 1 Fruitvale, Kern Co.	21-29-27	3,500	sd. sh. drlg.
H. L. J. Oil Co., No. 1 Fruitvale, Kern Co.	22-29-27	....	rigging up
Western Gulf Oil Co., No. 22 Fruitvale, Kern Co.	22-29-27	3,720	O.S. drlg.
Western Gulf Oil Co., No. 23 Fruitvale, Kern Co.	27-29-27	3,445	recmtd. 3,400
Mohawk Oil Co., No. 10 Fruitvale, Kern Co.	23-29-27	3,292	sd. sh. drlg.
Hogan Pet. Co., No. 11 Mountain View, Kern Co.	32-30-29	5,951	cmtd. 5,600
Hogan Pet. Co., No. 12 Mountain View, Kern Co.	32-30-29	4,675	sd. sh. drlg.
Hogan Pet. Co., No. 13 Mountain View, Kern Co.	32-30-29	1,260	sd. sh. drlg.
Buffalo Oil Co., No. 2 Mountain View, Kern Co.	19-30-29	761	sd. sh. drlg.
Wood-Callahan Oil Co., No. 2 Mountain View, Kern Co.	25-30-28	6,048	flow. 390 b.d.
Mohawk Oil Co., No. 16 Mountain View, Kern Co.	30-30-29	6,035	mill. 6,015
Mohawk Oil Co., No. 18 Mountain View, Kern Co.	30-30-29	5,510	sd. sh. drlg.
Mohawk Oil Co., No. 19 Mountain View, Kern Co.	30-30-29	....	rigging up
Ohio Oil Co., No. 3 Mountain View, Kern Co.	33-30-29	5,238	O.S. drlg.
Allied Pet. Corp., No. 1 Mountain View, Kern Co.	19-30-29	5,138	to cmt. csg.
Treasure Oil Co., No. 1 Mountain View, Kern Co.	12-30-28	....	rigged up
Shell Oil Co., No. 8 Mountain View, Kern Co.	32-30-29	5,818	cmtd. 5,595
Shell Oil Co., No. 9 Mountain View, Kern Co.	32-30-29	5,584	sd. sh. drlg.
Shell Oil Co., No. 10 Mountain View, Kern Co.	32-30-29	5,362	sd. sh. drlg.
Shell Oil Co., No. 11 Mountain View, Kern Co.	32-30-29	....	rigged up
Standard Oil Co., No. 23 Mountain View, Kern Co.	13-30-28	6,078	dry; abd.
Standard Oil Co., No. 24 Mountain View, Kern Co.	13-30-28	5,285	P.B. 5,188
Ohio Oil Co., No. 1 Rio Bravo, Kern Co.	1-30-25	4,360	sd. sh. drlg.
Shell Oil Co., No. 1 Stevens, Kern Co.	29-30-26	7,653	sd. sh. drlg.
Helm & Pruitt, No. 1 Round Mountain, Kern Co.	17-28-29	2,175	hd. sd. drlg.
Shell Oil Co., No. 4 Round Mountain, Kern Co.	7-28-29	....	bldg. rig
Shell Oil Co., No. 5 Round Mountain, Kern Co.	7-28-29	....	bldg. rig
Honolulu Oil Corp., No. 14 Round Mountain, Kern Co.	20-28-29	1,950	pump. 217 b.d.
Honolulu Oil Corp., No. 15 Round Mountain, Kern Co.	18-28-29	1,297	sd. sh. drlg.
Honolulu Oil Corp., No. 17 Round Mountain, Kern Co.	18-28-29	....	bldg. rig
Bauer Oil Co., No. 1 Edison, Kern Co.	21-30-29	3,194	pump. 148 b.d.
Shell Oil Co., No. 1 Edison, Kern Co.	21-30-29	4,981	fish. D.C.
M. & L. Oil Co., No. 1 Edison, Kern Co.	23-30-29	2,048	cleaning out
Jergins Trust, No. 21 Edison, Kern Co.	14-30-29	1,812	pump. 290 b.d.
Jergins Trust, No. 22 Edison, Kern Co.	22-30-29	3,104	P.B. 2,600
Jergins Trust, No. 23 Edison, Kern Co.	23-30-29	2,562	sd. sh. drlg.
Corbett, R. E., No. 1 Edison, Kern Co.	23-30-29	2,087	cmtd. 1,890
Whittier-Santa Fe Oil Co., No. 1 Edison, Kern Co.	21-30-29	3,249	cmtd. 2,995
Monterey Expl. Co., No. 5 Edison, Kern Co.	14-30-29	2,699	bailing
The Texas Co., No. 1 Edison, Kern Co.	23-30-29	....	rigged up
General Pet., No. 14 Edison, Kern Co.	24-30-29	1,458	P.B. 1,370
General Pet. Corp., No. 1 Elk Hills, Kern Co.	5-30-24	6,149	cmtd. 6,050
American Pacific Oil Co., No. 1 San Emidio, Kern Co.	18-10-23	....	rigging up
Gibson Oil Co., No. 2 Maricopa, Kern Co.	6-11-23	2,392	will redrl.
Gibson Oil Co., No. 4 Maricopa, Kern Co.	6-11-23	....	rigging up
Chief Oil Co., No. 2 Maricopa, Kern Co.	6-11-23	2,472	will redrl.
General Pet. Corp., No. 1 Maricopa, Kern Co.	6-11-23	2,420	O.S. drlg.
Standard Oil Co., No. 24 Midway-Sunset, Kern Co.	36-12-24	2,201	deepening
Standard Oil Co., No. 25 Midway-Sunset, Kern Co.	36-12-24	2,106	deepening
Standard Oil Co., No. 65 Midway-Sunset, Kern Co.	36-12-24	1,530	br. sh. drlg.
Standard Oil Co., No. 54 Midway-Sunset, Kern Co.	33-32-24	765	sd. sh. drlg.
Standard Oil Co., No. 219 Midway-Sunset, Kern Co.	33-32-24	....	bldg. rig
North American Oil Co., No. 2 Midway-Sunset, Kern	2-32-24	....	bldg. rig
Alford Oil Co., No. 4 Maricopa, Kern Co.	25-12-24	2,756	cmtd. 2,597
McAdams, Ed., No. 1 Midway-Sunset, Kern Co.	23-32-23	....	rigging up
Obispo Oil Co., No. 12 Midway-Sunset, Kern Co.	32-12-23	....	rigging up
Pet. Drlg. & Expl. Co., No. 2 Maricopa, Kern Co.	25-12-24	2,365	pump. 75 b.d.
Jerman, R. W., No. 1 Midway-Sunset, Kern Co.	31-12-23	2,976	br. sh. drlg.
Evans, H. B., No. 12 Midway, Kern Co.	35-32-23	2,350	P.B. 1,890
Ohio Oil Co., No. 6 Buena Vista Lake, Kern Co.	32-31-26	4,231	sd. sh. drlg.
Superior Oil Co., No. 1 Buena Vista Lake, Kern Co.	6-32-25	4,900	sd. sh. drlg.
Silver Gate Oil & Gas Co., No. 1 Tejon, Kern Co.	7-10-19	3,005	redrlg. 2,891
Reserve Oil Co., No. 1 Tejon, Kern Co.	33-11-19	6,032	P.B. 4,805
Seaboard Oil Co., No. 4 Huron, Fresno Co.	10-16-13	2,523	sd. sh. drlg.
Western Gulf, No. 3 Cantua, Fresno Co.	3-17-15	....	rigging up
Conlon, J. M., No. 1 Coalinga, Fresno Co.	30-19-15	796	cleaning out
Standard Oil Co., No. 1 South Coalinga, Fresno Co.	16-21-14	....	rigging up
Union Oil Co., No. 1 Lillis-Welsh, Fresno Co.	24-21-16	11,127	P.B. 10,729
K. N. D. A., No. 2 Kettleman North, Fresno Co.	20-21-17	6,440	sd. sh. drlg.
K. N. D. A., No. 38 Kettleman North, Fresno Co.	18-21-17	....	rigging up
K. N. D. A., No. 74 Kettleman North, Fresno Co.	10-21-17	1,964	sd. sh. drlg.
K. N. D. A., No. 36 Kettleman North, Kings Co.	16-22-18	9,733	flow. salt wtr.
K. N. D. A., No. 54 Kettleman North, Kings Co.	26-22-18	8,400	dry; abd.
Standard Oil Co., No. 56 Kettleman North, Fresno Co.	19-21-17	....	bldg. rig
Standard Oil Co., No. 65 Kettleman North, Fresno Co.	19-21-17	....	rigging up
Standard Oil Co., No. 72 Kettleman North, Fresno Co.	19-21-17	2,992	sd. sh. drlg.
Standard Oil Co., No. 2 Kettleman Middle, Kings Co.	29-23-19	8,353	hd. sd. drlg.
Petroleum Securities, No. 2 Kettleman Middle, Kings	30-23-19	9,332	abandoned
Royalty Service Corp., No. 1 Pyramid Hills, Kings Co.	16-24-18	4,201	dry; abd.
Barnsdall Oil Co., No. 1 Carissa Plains, Kings Co.	24-28-17	....	rigging up
Commonwealth Consd. Gas, No. 2 Tulare Lake, Kings	21-22-20	2,495	sd. sh. drlg.
Union-Hancock, No. 1 Tulare Lake, Kings Co.	28-22-20	4,740	sd. sh. drlg.
Pismo Pet. Corp., No. 1 Pismo, San Luis Obispo Co.	5-32-13	2,574	sd. sh. drlg.
Emerich Oil Co., No. 1 Cholame, San Luis Obispo Co.	22-32-22	1,906	cleaning out
United Oil Co., No. 1 Cholame, San Luis Obispo Co.	2-32-21	380	sd. sh. drlg.
Amerada Pet., No. 7 Tracy, San Joaquin Co.	15- 2-5	5,896	sd. sh. drlg.
Standard Oil Co., No. 1 McDonald Island, San Joaquin	25- 2-4	3,575	sd. sh. drlg.
Northern Counties Pet., No. 1 Tehama, Tehama Co.	25-24-3	7,050	cleaning out
Shell Oil Co., No. 1 Branch, Monterey Co.	24-24-10	7,675	sd. sh. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Bldg., building.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
C.P., casing pressure.
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
C.L., center line.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.L., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging back (or plugged) back.
P.B.P., pulling big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.R.T., rigging up rotary tools.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdtr. or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.S.C., waiting on cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.O.O.K., water shutoff O.K.
W.S.O.N.G., water shutoff no good.
W.S.R. or W.O.S.R., wait on standard rig.
Wtr., water.

The Texas Co., No. 2 Eureka, Humboldt Co.	22- 3-1	4,172	sd. sh. drlg.
Amerada Pet. Co., No. 1 Emigh, Solano Co.	26- 4-2	....	bldg. rig

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILCATS

Company, well and location;	S.T.R.	Depth	Status
Republic Pet. Co., No. 3 El Segundo, Los Angeles Co.	18- 3-14	7,354	sd. sh. drlg.
Marvin, J. L., No. 1 El Segundo, Los Angeles Co. ...	7- 3-14	7,041	sd. sh. drlg.
Sovereign Oil Co., No. 1 El Segundo, Los Angeles Co.	22- 3-14	8,766	dry; abd.
Cone Oil Co., No. 1 Lawndale, Los Angeles Co.	20- 3-14	5,876	sd. sh. drlg.
Shell Oil Co., No. 1 Moneta, Los Angeles Co.	23- 3-14	7,143	sd. sh. drlg.
Sioux Oil Co., No. 1 Torrance, Los Angeles Co.	31- 3-14	....	bldg. rig
White Five Oil Co., No. 1 Torrance, Los Angeles Co.	31- 3-14	3,885	P.B. 2,795
White Five Oil Co., No. 2 Torrance, Los Angeles Co.	31- 3-14	....	material
Linderman, G. K., No. 1 Torrance, Los Angeles Co. ...	31- 3-14	1,296	sd. sh. drlg.
Linderman, G. K., No. 2 Torrance, Los Angeles Co. ...	31- 3-14	....	bldg. rig
Sterling Oil Co., No. 1 Torrance, Los Angeles Co. ...	31- 3-14	3,877	pump. 171 b.d.
Walker Oil Co., No. 1 Torrance, Los Angeles Co. ...	5- 4-14	....	bldg. rig
Dumas-Lewis Oil Co., No. 2 Torrance, Los Angeles Co.	6- 4-14	....	bldg. rig
B. & N. Oil Co., No. 1 Torrance, Los Angeles Co. ...	18- 4-14	3,525	sd. sh. drlg.
Mallins Oil Corp., No. 1 Torrance, Los Angeles Co. ...	31- 3-14	....	bldg. rig
Morrison Oil Corp., No. 1 Torrance, Los Angeles Co.	31- 3-14	....	bldg. rig
Redondo Oil Corp., No. 1 Torrance, Los Angeles Co.	31- 3-14	....	rigging up
Reanek Oil & Gas Co., No. 1 Torrance, Los Angeles Co.	5- 4-14	3,165	cmtd. 3,145
C. C. M. Oil Co., No 23 Torrance, Los Angeles Co. ...	8- 4-14	4,762	sd. sh. drlg.
West American Oil Co., No. 1 Dominguez, Los Angeles	8- 4-13	7,890	sd. sh. drlg.
Union Oil Co., No. 8 Dominguez Carson, Los Angeles	33- 3-13	950	cmtd.
Shell Oil Co., No. 1 Long Beach, Los Angeles Co. ...	13- 4-13	6,035	redrlg. 5,791
Barnsdall Oil Co., No. 15 Rosecrans, Los Angeles Co.	18- 3-13	4,955	fish. D.P.
Mara Oil Co., No. 1 Athens, Los Angeles Co.	7- 3-13	4,850	cmtd. 3,900
Continental Oil Co., No. 38 Seal Beach, Los Angeles Co.	3- 5-12	6,538	cmtd. 5,938
Associated Oil Co., No. 18 Seal Beach, Los Angeles Co.	11- 5-12	975	sd. sh. drlg.
Standard Oil Co., No. 27 Seal Beach, Los Angeles Co.	3- 5-12	3,983	sd. sh. drlg.
Engler & Long, No. 1 Artesia, Los Angeles Co.	26- 3-12	5,888	P.B. 5,100
Clayton, C. L., No. 1 Long Beach, Los Angeles Co. ...	31- 3-12	6,765	P.B. 4,750
Standard Oil Co., No. 17 Inglewood Deep, Los Angeles	8- 2-14	2,750	sd. sh. drlg.
Ohio Oil Co., No. 18 Del Rey, Los Angeles Co.	22- 2-15	6,380	form. test
Eastern Oil Co., No. 1 Del Rey, Los Angeles Co.	22- 2-15	6,976	sd. sh. drlg.
Royalty Service Corp., No. 6 Del Rey, Los Angeles Co.	22- 2-15	6,172	sd. sh. drlg.
Herndon Dev. Co., No. 1 Del Rey, Los Angeles Co. ..	27- 2-15	6,323	pump. 120 b.d.
Union Oil Co., No. 21 Del Rey, Los Angeles Co.	27- 2-15	4,761	sd. sh. drlg.
Yant Pet. Corp., No. 1 Newhall, Los Angeles Co. ...	1- 3-16	1,900	sd. sh. drlg.
Yant Pet. Corp., No. 2 Newhall, Los Angeles Co. ...	36- 4-16	....	rigged up
Eyer Pet. Co., No. 1 Compton, Los Angeles Co.	20- 4-13	3,794	wet; recmtd.
Harbor Pet. Co., No. 1 Wilmington, Los Angeles Co. ..	28- 4-13	....	bldg. rig
Sovereign Oil Co., No. 1 Wilmington, Los Angeles Co.	28- 4-13	3,187	sd. sh. drlg.
Cedri Oil Co., No. 1 Wilmington, Los Angeles Co. ...	29- 4-13	1,185	sd. sh. drlg.
Standard Oil Co., No. 79 Montebello, Los Angeles Co.	2- 2-12	5,652	sd. sh. drlg.
Standard Oil Co., No. 81 Montebello, Los Angeles Co.	2- 2-12	3,410	hd. sd. drlg.
Standard Oil Co., No. 82 Montebello, Los Angeles Co.	2- 2-12	6,960	sd. sh. drlg.
Standard Oil Co., No. 83 Montebello, Los Angeles Co.	2- 2-12	3,692	sd. sh. drlg.
Standard Oil Co., No. 84 Montebello, Los Angeles Co.	2- 2-12	3,400	sd. sh. drlg.
Butler, C. R., No. 1 Montebello, Los Angeles Co.	14- 2-10	4,086	sd. sh. drlg.
Womac, Inc., No. 3 Montebello, Los Angeles Co. ...	4- 2-11	3,164	cmtd.
Woodward, J. A., No. 1 Montebello, Los Angeles Co.	4- 2-11	3,400	sd. sh. drlg.
The Texas Co., No. 13 Montebello, Los Angeles Co. ..	5- 2-11	7,312	recmtd. 6,884
Universal Consd., No. 6 Montebello, Los Angeles Co.	5- 2-11	3,693	sd. sh. drlg.
Wilshire Oil Co., No. 1 Montebello, Los Angeles Co. ..	5- 2-11	6,352	redrlg. 5,630
Richfield Oil Co., No. 1 Montebello, Los Angeles Co...	5- 2-11	3,130	sd. sh. drlg.
Richfield Oil Co., No. 2 Montebello, Los Angeles Co...	5- 2-11	1,963	sd. sh. drlg.
North American, No. 2 Montebello, Los Angeles Co. ..	5- 2-11	4,143	sd. sh. drlg.
St. Helens Pet. Co., No. 7 Montebello, Los Angeles Co.	5- 2-11	982	sd. sh. drlg.
Oil & Gas Associates, No. 1 Pico, Los Angeles Co. ...	9- 2-11	4,098	sd. sh. drlg.
Great Coastal Oil Co., No. 1 Elsinore, Riverside Co.	35- 5-5	2,215	hd. sd. drlg.
Stevens, F. E., No. 1 Corona, Riverside Co.	27- 3-7	....	rigging up
Commander Oil Co., No. 1 Newport, Orange Co.	29- 6-10	1,115	sd. sh. drlg.
Twentieth Century Oil Co., No. 1 Huntington, Orange	36- 5-11	4,490	pump. 120 b.d.
Hillman & Long, No. 1 Westminster, Orange Co.	14- 5-11	5,931	sd. sh. drlg.
West American Oil Co., No. 1 Coyote, Orange Co. ...	24- 3-10	....	bldg rig
Standard Oil Co., No. 1 Anaheim, Orange Co.	36- 3-9	2,714	cleaning out
Union Oil Co., No. 29 Chapman Richfield, Orange Co.	30- 3-9	2,100	sd. sh. drlg.
Continental Oil Co., No. 1 Yorba, Orange Co.	21- 3-9	4,796	will P.B.

KANSAS

(Week Ending April 11. Descriptions are East unless marked otherwise)

Barton County

Arch E. Merriam No. 1 Soeken, SW SW SE sec. 21-17-11w. Drlg. 1,924 ft.

Buchanan & Alexander No. 1 Langfeld NE NE SW sec. 14-20-11w. Drlg. 2,395 ft.

John Burton No. 1 Wendel, NE cor. sec. 13-19-11w. Spudded.

Davison et al No. 1 Birzer, SW SE SW sec. 22-17-12w. Spudded.

Hilligoss et al No. 1 Schmidt, NE cor. sec. 27-19-11w. Drlg. 3,476 ft.

George W. Hinkle No. 1 Smith, SW NW NW sec. 1-17-11w. Set 8-in. csg. 2,980 ft.

Morgan & Flynn et al No. 1 Zimmer, SE SE SW sec. 20-19-14w. U.R. 3,050 ft.

Murphy & Morgan No. 1 Robinson, NE NE SW sec. 21-16-14w. U.R. 3,750 ft.

Roy Ramsey et al No. 1 Hunt, NW cor. sec. 10-18-11w. Drlg. 3,233 ft.

Schermerhorn Oil Co. No. 1 Hunter, NE cor. sec. 29-18-15w. Drlg. 785 ft.

Simpson & Noble and Atlantic Oil Producing Co. No. 1 Hiss, C NW NE sec. 31-20-13w. Drlg. 3,000 ft.

Terry & Feaster No. 1 Feist, NE NE SE sec. 29-18-11w. Siliceous lime 3,430-32½ ft.; T.D.; potential; pumped 346 bbls. oil in 18½ hrs.

Wakefield & Johnson No. 1 Bumm, SW SW NE sec. 22-19-12w. S.D. 135 ft. Will skid rig.

Butler County

Ellis et al No. 1-A Pettit, SE SE NW sec. 21-28-6. Rig.

Cowley County

Craft et al No. 1 Whitson, NE NE NE sec. 20-33-4. Drlg. 50 ft.

Mead Bros. et al No. 1 Orr, SE SE SW sec. 23-31-4. Drlg. 2,485 ft.

O. D. Mickleson et al No. 1 Wallace, SW SE SE sec. 10-33-4. Spudded.

A. D. Morton et al No. 1 Roger, SE SE NE sec. 1-31-4. Spudded and S.D.

Penwest Oil Co. No. 1 Clover, NE SE SE sec. 8-31-7. 19,000,000 ft. gas 1,430-60 ft.; Siliceous 3,177 ft.; T.D. 3,182 ft.; showing water; P.B. 1,490 ft.

Roth & Faurot No. 1 Guthrie, NW cor. Lot 14, sec. 30-33-8. Drlg. 3,135 ft.

Earl Wakefield No. 1 Wilson, NW cor sec. 4-32-3. Chat. 3,069 ft.; drlg. 3,940 ft.

Edwards County

Stanolind O. & G. Co. et al No. 1 Donovan, C SE SE sec. 14-26-18w. Bldg. rig.

Ellis County

Jones Bros. & Carpenter et al No. 1 Solomon, SE SE SW sec. 28-11-19w. Set 15-in. csg. 832 ft.

Bridgeport Machine Co. et al No. 1 Madden Est., NE NW NW sec. 26-15-18w. S.D. 350 ft.

Brunson & Ewers-Simpson No. 1 Gross. NE NE SW sec. 29-14-17w. Set 12-in. csg. 767 ft.

Harris & Haun et al No. 1 Schmeidler, SE SE SW sec. 3-13-17w. Rigging up.

Lario Oil & Gas et al No. 1 Walter, SE NE SW sec. 2-12-18w. Anhydrite 1,314 ft.; C.O. 1,348 ft.

Muth et al No. 1 Penney, SW SW SE sec. 29-14-18w. M.I.M.

Tom Palmer No. 1 Schoenthaler, NE NE NW sec. 31-12-19w. Rig.

Twin Drlg. Co. No. 1 Reidel, SW SW NE sec. 27-13-16w. R.U.; S.T. 3,184 ft.

Yarnell & Carlson No. 1 Phillip, NW NW SE sec. 2-14-18w. R.U.

Ellsworth County

Empire O. & R. Co. et al No. 1 Kroesch, NW NW SE sec. 33-17-9w. Drlg. 1,870 ft.

Skiles et al No. 1 Kafka, NE NE SW sec. 15-17-8w. K. C. lime 2,825 ft.; drlg. 2,840 ft.

Finney County

Lone Star State Drlg. Co. No. 1 Hamlin, SW SW NE sec. 31-24-34w. R.U.

Graham County

Vickers Pet. Co. & Phillips Pet. Co. No. 1 Hutton, NE NE SE sec. 29-8-22w. Drlg. 1,430 ft.

Greenwood County

Hale & Reese No. 1 Needles, NE SE NW sec. 12-25-10. S.D. 285 ft.

Harper County

Marathon Oil Co. No. 1 Zellers, C SW NW sec. 17-35-8w. Wilcox sand 5,320 ft.; S.O. and gas, salty taste; T.D. 5,410 ft.; fsg.

Harvey County

Empire O. & R. Co. et al No. 1 Webster, SE SE SW sec. 8-24-2w. Chat, 3,334-35 ft.; Set 10-in. csg.

Harburney Oil Co. No. 1 Schrag, NW NW SE sec. 24-22-3w. Drlg. 2,580 ft.

Western Kansas O. & R. Co. No. 1 Warkentin, C SW SW sec. 1-23-2w. Chat, 2,970 ft.; S.D. 3,986 ft.

Haskell County

Helmerich & Payne et al No. 1 Larson, C SE sec. 28-28-33w. Rig.

Kuhn Brothers et al No. 1 Nilson, SW SW SE sec. 21-28-32w. R.U.R.

Kingman County

D. R. Lauck et al No. 1 Skilling, C E½ E½ SW sec. 33-27-8w. O.W.D.D.; drlg. 4,583 ft.

Marion County

Milton et al No. 1 Young, NW NW SE sec. 17-21-3. Viola 2,935 ft.; H.F.W. 2,-980 ft.; Wilcox 2,984 ft.; Siliceous 3,074-88 ft., T.D.;D.&A.

McPherson County

Empire Oil & Ref. Co. No. 1 Cunningham, SE cor. sec. 26-18-1w. R.U.

Ness County

Continental Oil Co. No. 1 Holcomb, 1,320 ft. from N and 440 ft. from E lines of NW¼ sec. 26-11-23w. Drlg. 1,267 ft.

Continental Oil Co. No. 1 Thompson, C E½ E½ SW sec. 13-18-26w. Set 16-in. csg., 158 ft.

Reno County

Dickey Oil Co. No. 1-A Shepherd, NE NE NW sec. 22-26-9w. Chat 3,870 ft.; set 7-in. csg. 4,125 ft.; R.U.; S.D.

Foraker et al No. 1 Hiett, SE SW NE sec. 34-24-4w. Drlg. 2,185 ft.

Helmerich & Payne et al No. 1 Schwaiger, SW SE NE sec. 27-26-5w. Fsg. 3,800 ft.

McPherson Drlg. Co. et al No. 1 Miller, SE SE NE sec. 23-24-5w. Chat 2,365-73 ft.; swb. 15 bbls. wtr. per hr.; trace of oil; drlg. 3,500 ft.

Rice County

Joe Aylward et al No. 1 Oberle, SE SE SW sec. 19-18-10w. Siliceous 3,395 ft.; wtr. 3,402 ft.; S.D.

Beardmore et al No. 1 Fuller, SW SW SE sec. 23-18-7w. Bldg. rig.

Continental Oil Co. and Empire Oil & Ref. Co. No. 1 Nickel, NE SW SW sec. 13-18-8w. Siliceous lime 3,210 ft.; T.D. 3,214 ft.; acidized; P. 883 bbls. oil in 24 hrs.

Day No. 1 Mason, NW NE NE Sec. 28-21-7w. Chat 3,288-3,400 ft.; flowed 91 bbls. in 50 minutes; shut in 2 hrs., flowed 3 bbls. oil in 10 min.; C.O.

Dickey Oil Co. and Continental Oil Co. No. 1 Newkirk, NE NE SW sec. 11-18-7w. R.U.

Duwe & Schneider No. 1 Wright, NE cor. sec. 36-21-7w. Drlg. 2,530 ft.

Glimac Oil Co. No. 1 Sargent, SE cor. sec. 31-18-6w. Spudded and S.D.

Grattan et al No. 1 Williams, SW SW NW sec. 17-18-7w.; K.C. lime 2,818 ft.; drlg. 2,830 ft.

Gulf Oil Corp. No. 1 Steckel, SW cor. sec. 30-19-10w. Set 10-in. csg. 150 ft.

Permian Oil Co. No. 1 Monroe, C NE NE sec. 9-20-7w. Set 10-in. csg. 2,090 ft.

Sage et al No. 1 Patton, SW cor. sec. 5-21-7w. Cellar.

Simpson & Noble et al No. 1 Pulliam, C S½ N½ NE sec. 35-19-8w. M.I.M.

Skiles et al No. 1 Stout, SE cor. sec. 6-21-9w. Bldg. rig.

W. E. Witt No. 1 Hill, SE SE NW sec. 3-20-9w. Drlg. 1,940 ft.

Rooks County

Hartman & Blair et al No. 1 Hall, NW cor. sec. 25-10-17w. Bldg. rig.

J. H. Lester No. 1 Methene, SE SE NE sec. 29-10-20w. Drlg. 155 ft.

Murfin et al No. 1 Wasthusin, NE NE SE sec. 19-9-16w. U.R. 2,250 ft.

Pryor & Lockhart's No. 1 Bradley, SW SW NE sec. 31-10-16w. Oswald 3,166 ft.; S.D. 3,650 ft.

Skaar Oil Corp. et al No. 1 Dryden, NE cor. sec. 28-10-17w. R.U.

Rush County

Boyle & Grossman No. 1 Wilson, NE cor. sec. 33-17-19w. S.D. 415 ft.

Ira Keith et al No. 1 Dartmouth Savings Bank, SW SW NE sec. 3-17-18w. Oswald 3,335 ft.; R.U.S.T. 3,346 ft.

National Refining Co. No. 1 Werth, NW NE NE sec. 7-16-18w. Drlg. 1,165 ft.

Pryor & Lockhart et al No. 1 Stegman, SW NW NE sec. 11-16-17w. Rig.

Rose Spring Drlg. Co. et al No. 1 Jacobs, SW SE NW sec. 8-16-17w. Drlg. 2,230 ft.

Russell County

R. G. Berry et al No. 1 Cook, NE NE SE sec. 19-11-13w. Drlg. 2,425 ft.

Bridgeport Machine Co. et al No. 1 Wyckoff, SE NW NE sec. 27-11-13w. Oswald 2,955 ft.; drlg. 3,325 ft.

Central Pet. Co. No. 1 Furthmeyer, NE cor. sec. 28-14-15w. Set 15-in. csg. 340 ft.

Darby Petroleum Corp. and Continental Oil Co. No. 1 Letsch, SE NE NW sec. 34-14-13w. Drlg. 2,175 ft.

Eisenhour & Shaffer No. 1 Humes, SW SW SW sec. 6-14-12w. Drlg. 2,310 ft.

Empire O. & R. et al No. 1 Major, SE cor. sec. 11-14-12w. Oswald 2,902 ft.; Siliceous 3,256 ft.; T.D. 3,261 ft.; D.&A.

Sam Murphy et al's No. 1 Enschuts & Schaffer, SW cor. sec. 10-15-13w. Siliceous 3,311 ft.; T.D. 3,327 ft.; hole filled with oil in 12 hrs.; drlg. cmt.

Stearns & Streeter et al No. 1 John Hancock Ins. Co., SE SW SW sec. 31-12-14w. R.U.

R. C. Tarrant No. 1 Williamson, SE SE NW sec. 9-14-14w.
Tarkio lime 2,515 ft.; T.D. 2,550 ft.; swbd. 5 bbls. oil per hr., and showing of wtr.; acidized with 1,000 gals.; made potential of 243 bbls. of oil.

P. G. Reynolds No. 1 Fredrickson, SE SW SE sec. 6-13-12w. S.D. 2,620 ft.

Wakefield et al No. 1 Krug, NE NW SW sec. 7-15-14w. M.I.M.

Sedgwick County

Dickey Oil Co. No. 1 Ayers, SW SW NW sec. 12-27-2. Fsg. 590 ft.

Stafford County

L. A. Farris et al No. 1 Snyder, SE SE NW sec. 3-21-11w. T.D. 3,111 ft.; 3,000,-000 ft.; gas; flowed 226 bbls. oil on potential test; W.O.C.

Kessler & Their No. 1 Evans, NE NE NE sec. 20-21-11w. Viola 3,525-42 ft.; S.D. 3,550 ft.

Lario O. & G. Co. et al No. 1 Andress, C NW NE sec. 1-21-13w. Drlg. 3,377 ft.

Stanolind O. & G. Co. and Atlantic Oil Prod. Co. No. 1 Shotton, SW cor. sec. 27-22-13w. R.U.

Sumner County

Craft & Wilson No. 1 Nevitt, NE NW NE sec. 36-32-2e. Drlg. 1,500 ft.

Helmerich & Payne et al No. 1 Elwell, NW NW NE sec. 18-34-1. Drlg. 3,703 ft.

Matthews & Derrington No. 1 Berry, NW NW SE sec. 14-35-1. Drlg. 1,225 ft.

Pryor & Lockhart et al No. 1 Knowles, SW cor. sec. 30-30-1. M.I.M.

Texas Co. No. 1 Reed, NE SE SE sec. 11-31-1w. M.I.M.

Wilcox O. & G. Co. et al No. 1 Hess, SE SE NW sec. 13-34-2w. Drlg. 1,900 ft.

D. J. Wilson et al's No. 1 Clark, 1,320 ft. from W and 25 ft. from S line of NW sec. 15-35-1w. Drlg. 3,550 ft.

Trego County

Central Commercial's No. 1 Wagg, NW NW SE sec. 17-13-21w. K.C. lime 3,548 ft.; bailed 30 bbls. oil per day; acidized; bailed 12 bbls. oil per day; T.D. 3,908 ft.; acidized.

Continental Oil Co. No. 1 Holcomb, E½ E½ NW sec. 26-11-23w. Oswald lime, 3,602 ft., corrected; T.D. 3,654 ft.; 1,-500 ft. oil in hole.

R. B. McNeely et al No. 1 Lemke, NW NW SW sec. 7-11-23w. Rotary rig.

Woodson County

N. C. Dunn No. 1 Dawson, C NW NE sec. 27-26-13. Drlg. 1,400 ft.

C. L. Sheedy No. 1 Baker SE SE NW sec. 2-26-14. Drlg. 1,527 ft.

Max Reynolds No. 1 Guy, NE NE SE sec. 29-25-14. S.D. 1,400 ft.

OKLAHOMA

Week Ending April 11

NORTHERN OKLAHOMA

Alfalfa County

Tex-O-Kan Oil Co. No. 1 Acra, C SW NE sec. 14-24-11w. Sylvan shale 7,065 ft.; Wilcox sand 7,259 ft.; cored 7,327-32 ft.; salty; P.B. 6,720 ft.; temp. abd.

Beckham County

Carter Oil Co. No. 1 Davidson, C NW SW sec. 2-9-25w. Drlg. 2,650 ft.

Wood Pet. & Royalty Corp. No. 1 Blair, C NW SE sec. 32-9-26w. T.D. 2,763 ft. C.O.

Caddo County

Denver Prod. & Ref. Co. No. 1 Sah-Can C SE SE sec. 33-10-10w. Drlg. window in pipe, 7,900 ft.

Cleveland County

Hall-Briscoe, Inc. No. 1 Fant, S.W. SW NE sec. 27-10-2w. S.D. at 7,511 ft.

Asa Lee Mayes, Inc., No. 1 Parsons, SW SW SE sec. 30-9-1. C.O. to 3,510 ft. Shot pipe, 3,450 ft.; fsg.

Coal County

Shell Pet. Corp. No. 1 Hill, SE SE NW sec. 30-3-10. Hunton 5,280 ft.; Sylvan 5,355 ft.; Viola 5,448 ft.; coring 5,530 ft.

Comanche County

N. E. Milling No. 1 Miller, NE NE SW sec. 23-4-12w. T.D. 902 ft.; S.D.

Garfield County

Herndon Drlg. Co. et al No. 1 Branson, SW SW SE sec. 23-24-3w. Drlg. 4,780 ft.

W. J. Sherry et al No. 1 Haken, NW NW SW sec. 32-20-10w. Miss. lime 5,960 ft.; fshg. 6,240 ft.

Stanolind O. & G. Co. et al No. 1 Brunken, SW SW NE sec. 32-23-4w. Coring 5,949 ft.

Hughes County

W. P. Canavan No. 1 Meadors, SE NE SE sec. 5-8-10. Gilcrease 2,600 ft.; Wapanucka 3,050 ft.; Cromwell 3,058 ft.; sands 3,120 ft. and 3,180 ft.; slight showing of oil; T.D. 3,196 ft.; P.B. 3,168 ft.; flowed 20 bbls. oil in 24 hrs.

M. H. Halsey No. 1-A Eustep, NW NW SW sec. 11-8-9.
Wapanucka 3,428 ft.; Cromwell 3,452 ft.; T.D. 3,464 ft.; 2 bailers wtr. an hr.; P.B. and shot, 3,030-45 ft.; est. 10,000,000 ft. of gas; P.B. to 3,412 ft.; re-shot.

George Orr et al No. 1 Morgan, NE SE SW sec. 6-7-9. Cellar and pits.

Phillips Pet. Co. No. 1 Eberle, NE NE SW sec. 12-5-9. Wapanucka 3,887 ft.; cored to 4,348 ft.; coming out of hole.

Schumacher et al No. 1 Schumacher, NE NW NE sec. 22-5-10. T.D. 1,782 ft.; tubing.

Sinclair Prairie Oil Co. et al No. 1 Simon, SW cor. sec. 23-9-8. Loc.

Sivalls et al No. 1 Montgomery, NW SW NW sec. 7-9-9. Drlg. 2,900 ft.

Kay County

W. O. Allen No. 1 Fulton, SE cor. sec. 18-27-4 Bldg. rig.

Black Gold Pet. Co. No. 1 Cooley, NE NW SW sec. 25-28-4e. Sand 2,128-98 ft.; T.D. 2,214 ft.; D.&A.

Kiowa County

W. C. Adams et al No. 2-A Stone, C SE SE NE sec. 34-7-17w.
T.D. 1,193 ft.; machine moved out.

Logan County

Stanolind O. & G. Co., Amerada Pet. Corp. and Eason O. & R. Co. No. 1 Gragg, SW SW NE sec. 20-18-4w. T.D. 6,145 ft.; production est. 1,045 bbls. oil, 40,000,000 ft. gas; comp.

McClain County

Arab Pet. Corp. No. 1 Autry, NW cor. sec. 16-7-3w. T.D. 3,204 ft.; drlg. by fish, 150 ft. off bottom.

McCurtain County

Louis Sikes No. 1 Mitchell, C NW SW sec. 12-8s-26. R.U.R.

McIntosh County

Indian Ty. Ill. Oil Co.'s No. 1 Tancred, 1,050 ft. S and 390 ft. E of C. Sec. 9-9-14. Gilcrease sand, 2,695-2,732 ft.; 20,000,000 ft. of gas; Cromwell 3,608 ft.; sand 3,784-35 ft.; est. 100,000 ft. gas; drlg. 3,945 ft.

Oklahoma Oil Corp. No. 1-A Wolf, SE SW SE sec. 35-12-17. Gas sand 800 ft.; dry sands 1,200 ft. and 1,400 ft.; set 6-in. csg. at 2,867 ft.; drlg. 3,350 ft.

Noble County

Continental Oil Co. No. 1 Pruitt, NW SE SW sec. 19-20-1w. Oswego 4,385 ft.; drlg. 4,665 ft.

Okfuskee County

Champlin Ref. Co. No. 1 Thompson, SW SW NW sec. 7-12-8. R.U.

Manahan & Grisso No. 1 Dalton, SE SE SE sec. 34-10-8.
Senora sand 1,722 ft.; T.D. 1,763 ft.; flowed 75 bbls. oil first hour after shot; flowed 225 bbls. in 7 hrs., and 263 bbls. in 9 hrs.; lost 4 hrs. while cleaning out.

Oklahoma County

H. R. Hollenback et al No. 1 Cooper, NW NW NE sec. 15-11-1. Drlg. 4,070 ft.

Sinclair Prairie O. & G. Co. No. 1 Corbett, NE NW NE sec. 17-13-3w.
Washed clean and acidized; flowed 17½ bbls. "gasoline" and 2,000,000 ft. of gas in 24 hrs.; first Wilcox 6,565 ft.; second Wilcox 6,655 ft.; coring.

Osage County

Champlin Ref. Co. No. 1 Osage, SW SW NE sec. 35-25-6. Bldg. rig.

Elfred Beck No. 1 Osage, SE SE NE sec. 16-23-7. Drlg. 810 ft.

Gray & Folson No. 1 Osage, SW SW NE sec. 23-25-7. Cellar.

Midco Oil Corp. et al No. 1 Osage, NW NW SE sec. 11-23-6. Machine.

Stoner Bros. No. 1 Osage, NW NE SW sec. 18-22-8. Loc.

Payne County

Denver Producing & Ref. Co. et al No. 1 Pratt, NW cor. sec. 20-18-2. Rig.

Pontotoc County

Mid-Texas Pet. Co. No. 1 Whitsey, SW SW SE sec. 30-5-4. T.D. 1,946 ft.; swbd. 100 bbls. oil in 12 hrs.; pmpd. 83 bbls. in 6 hrs.

Sandback et al No. 1 Sands, NE NE NE sec. 20-3-5. C.O. 375 ft.

J. L. Shaw No. 1 Illinois Bankers Life Ins. Co., NW SW NE sec. 1-4-5. Drlg. 2,386 ft.

Pottawatomie County

Gulf Oil Corp. No. 1 Bois-Clark, SW SE SE sec. 21-6-4. Dolomite 3,760 ft.; T.D. 3,835 ft.; W.O.C.

Rose Oil Co. et al No. 1 Sparkman, SE NE sec. 33-8n-4e.
C.O. 2,915 ft.; shot at 2,871-90 ft.; swbd. 250 bbls. in 24 hrs.; acidized.

J. L. Shaw No. 1 Illinois Life, NW SE NW sec. 1-4-5. Drlg. 1,590 ft.

Seminole County

Amerada Pet. Corp. et al No. 1 Community, NE NE SW sec. 2-10-5. Hunton, 4,421 ft.; S.O. in cores to 4,438 ft.; Halliburton test.

Ark Royalty Co. No. 1 Kiker, SE SE NE sec. 9-10-7. Rigged up and S.D.

Imperial Drlg. Co. No. 1 Aldridge, SW NE NW sec. 32-9-8. Calvin, 1,869 ft.; cored to 1,907 ft.; showing oil and gas.

Sinclair Prairie Oil Co. et al No. 1 Harrison, NE NE NW sec. 17-8-8. Drlg. 2,434 ft.

Felmlee & Nicholson No. 1 Belford, SE NW NE sec. 15-9-8. Sd. 1,460-1,505 ft.; S.O.&G.; S.D. 1,650 ft.

Washita County

L. P. McWhirter's No. 1 fee, SW cor. Sec. 34-8n-19w. S.D. 1,380 ft.

SOUTHERN OKLAHOMA

Atoka County

Vierson et al's No. 1 Williams NE SW NW sec. 24-2s-10. Produced 100,000 ft. o gas at 4,100-15 ft.; T.D. 4,930 ft.; D.&A.

Bryan County

Trio Oil Co. No. 2 Gilbert, C SW sec. 25-8s-7e. M.I.M.

Carter County

Carter Oil Co. No. 1 Carter-Williams, SW NE SW sec. 27-2s-3w. T.D. 3,105 ft.; flowed 3,309 bbls. in first 24 hrs.

Carter Oil Co. et al No. 1 Leon Voorhees, C SE SW sec. 34-5s-2w. Coring 2,875 ft.

Southern States Oil Dev. Co. No. 1 Moore, NE SE NW sec. 30-4s-1w. S.D. 1,155 ft.

Texas Co. No. 1 Cathey, SE NE NE sec. 6-5s-1w. T.D. 4,191 ft.; P.B. to cement cave.

Harmon County

Lionlko Trust, Ltd. No. 1 Crosnoe, SE SE SW sec. 14-3n-25w. Drlg. 780 ft.

Jackson County

C. P. Burnham No. 1 Oliver, NW NW SE sec. 26-1-20w. Granite Wash 1,350 ft.; gas 500,000 ft.; U.R. 1,352 ft.

A. H. Jackman No. 1 fee, SW SW SW sec. 27-1s-24w. T.D. 2,528 ft.; fsg.

Universal Oil Co. No. 1 R. W. Briscoe, NW SW NE sec. 36-1s-20w. S.D. 1,550 ft.

Jefferson County

A. T. Campbell No. 1 Trout, SE NE NE sec. 6-3s-7w. Sd. 1,535-57 ft.; T.D. 1,695 ft.; S.D. for pipe.

L. C. Hydrick No. 1 Peoples National Bank, SW SW SW sec. 26-4s-5w. Location abd.

Geo. Pace No. 1 Gardner, SW cor. Sec. 23-5s-5w. T.D. 2,533 ft.; S.D.O.

Reno Oil Co. No. 1 Gann, SE SW NE sec. 35-4s-4w. Drlg. 1,920 ft.

Johnston County

Equitable O. & G. Co. No. 1 Bellsey, NE SW sec. 12-2s-4e.
Arbuckle lime 1,552 ft.; drlg. 1,938 ft. in lime.

Magnolia Pet. Co. No. 1 Green, NE cor. sec. 12-2s-7. Drlg. 499 ft.

Moore & Wirick No. 1 Westheimer & Daube, SE NW NE sec. 19-3s-4e. Drlg. 3,030 ft.

Love County

Amerada Pet. Corp.'s No. 1-A Westheimer & Daube, SW SE SW sec. 27-6s-2e. Drlg. 7,008 ft. in lime.

J. B. Russell et al No. 1 Scott, SW SE SW sec. 29-5s-2e. T.D. 4,968 ft.; S.D. for orders.

Sinclair Prairie Oil Co.'s No. 1 Stockton SE SE SW sec. 26-5s-2w. T.D. 6,914 ft.; sd. 6,890-6,909 ft.; flowed and swbd. 534 bbls. oil in 5 days; drlg. 7,140 ft.

Marshall County

Helmerich & Payne No. 1 Taliaferro, NW SE SW sec. 26-5s-5e. Loc.

Norman Smith No. 1 Chestnut, NE cor. sec. 23-8s-5e. T.D. 500 ft. S.D.

Pushmataha County

C. W. Whitehead et al No. 1 Misser, SE SW SW sec. 35-3s-18e. T.A.; T.D. 3,940 ft.

Stephens County

W. G. Endicott et al No. 1 McFatridge, NW NW SW sec. 11-3s-9w. Drlg. 1,054 ft.

Clyde Rhodes et al No. 1-A Doak, SW SW SW sec. 1-1s-5w. S.D. 1,803 ft.

Tillman County

Gulf Oil Corp. No. 1 Wearmouth, SE NW SE sec. 31-1s-19w. Set 7-in. csg. 3,371 ft.; drlg. 4,437 ft. in lime.

D. S. Smith No. 1-A Hammill, NE NE NW NW sec. 6-5s-15w. S.D. 495 ft.

ARKANSAS

Arkansas County

Ark. O. & G. Co. No. 3 Fischer, 350 ft. S. 280 ft. E. NW cor. NE NW sec. 6-4w. R.U.; W.O.

Calhoun County

Ben G. Barnett No. 1 Freeman Smith, SE cor. sec. 34-15-14. Set 20-in. 40 ft.

Clark County

Steris Tripanoff, tr., No. 1 W. Gibbons, sec. 27-8-19. Arranging to test 557 ft.

Dallas County

Kel-Mac Lease & Royalty Co. No. 2 R. Owens, NW cor. NW SW sec. 26-10-16. Set 10-in. 45 ft.; drlg. 570 ft.

Hempstead County

Dixie Drlg. Co. No. 1 Wheatley, 330 ft. S. 30 ft. E. NW cor. SW NE sec. 14-11-26. R.U. and S.D.

Fitzwater et al No. 2 Lafferty, C NW sec. 17-14-24. Arranging test 1,946 ft.

Murdock-May & Easton No. 1 Conway est., 330 ft. N and E. SW cor. NW SW sec. 17-14-24. Set 12¾-in. 80 ft.; S.D. 120 ft.

LaFayette County

Earl F. Fox No. 2 Coleman Bros., NE NE sec. 30-16-24. S.D. 2,760 ft.

Erwin & Leach No. 3 Bodcaw Lbr. Co., 330 ft. S and E, NW cor. sec. 20-16-13. Drlg. 5,560 ft.

Joe Modisett No. 1 Red River Lbr. Co., C SW SW sec. 31-19-14. Drlg. 4,830 ft.

Transportation Pet. Co. No. 1 Cockran, 330 ft. S and W, NE cor. SE sec. 26-19-25. Tested S.W.; T.A. 3,675 ft.

Miller County

Odell Hinson No. 1 Montana Realty Co., NE cor. NW NW sec. 3-17-28. Set 12¼-in. csg. 228 ft.

King Oil Corp. No. 1 G. W. Crank, SW NE sec. 19-16-25. S.D.; W.O. 8,906 ft.; (corrected).

C. V. Lanz No. 2 Dale, sec. 24-15-26. Set 10in. 200 ft.; drlg. 1,840 ft.

L. H. Mahon et al No. 1 Miller Land & Timber Co., SW cor. SE sec. 29-18-27 S.D. 1,812 ft.

Ouachita County

L. L. McDonald No. 1 Langley, 330 ft. N and E, SW cor. NE SW sec. 19-15-18. S.D. 1,700 ft.

Phillips Pet. Co. No. 1 J. D. Reynolds, 330 ft. N and W, SE cor. SE NW sec. 27-15-15. Testing 4,916 ft.

J. D. Reynolds No. 1 McKenzie, 204 ft. S, 300 ft. W, NE cor. SE SW sec. 34-15-16. W.O.S.R. 1,970 ft.

Union County

Arkansas Southern Oil Co. No. 1 F. R. Laney, sec. 30-19-16.
Installing larger rig, 175 ft.

J. C. Bucbee No. 1 Ezzell, SW cor. NE NW sec. 13-17-15. Reaming 3,317 ft.

McCrassien Oil Co. No. 2 D. Norman, NE cor. NE SE sec. 3-18-13. Set 10-in. 120 ft.; coring 3,560 ft.

LOUISIANA

NORTH LOUISIANA PROVEN

Caddo—Rodessa

Ark.-La. Gas Co. No. 11 Rodessa Oil & Land Co., NW cor. NE sec. 23-23-16. Comp. 54 bbls. per hour 6,002 ft.

Ark.-La. Gas Co. No. 12 Rodessa Oil & Land Co., NW SE sec. 22-23-16. Drlg. 3,320 ft.

Ark.-La. Gas Co. No. 14 Rodessa O. & Land Co., SW cor. NW sec. 23-23-16. Drlg. 2,237 ft.

Ark-La Gas Co. No. 9-A Rodessa Oil & Land Co., SE NE sec. 22-23-16. Drlg. 4,528 ft.

Bartex Pipe Line Co. No. 3 Norton Est., SE NE sec. 13-23-15. Drlg. 5,728 ft.

Bartex Pipe Line Co. No. 4 Norton Est., SW cor. SW NW sec. 17-23-15. Drlg. 4,125 ft.

Bartex Pipe Line Co. No. 1 Robinson, C E½ NE SE sec. 13-23-15. Fsg. for D.S. 6,028 ft.

Bartex Pipe Line Co. No. 2 Robinson, center W½ NW SW sec. 17-23-15. Set 7-in. 6,029 ft.; testing 6,057 ft.

Bartex Pipe Line Co. No. 2 Rodessa Oil & Land Co., NE SE sec. 13-23-15. Drlg. 5,378 ft.

Blackwell O. & G. Co. No. 1 Nugent, SW cor. NE SE sec. 8-23-15. Set 16-in. 240 ft.; drlg. 1,455 ft.

S. P. Borden No. 1 K.C.S., NW cor. SW sec. 23-23-16. Set 13⅜-in. sec.; drlg. 4,520 ft.

Danciger O. & R. Co. No. 1 Francis heirs, C Lot 2, Blk. 10, sec. 23-23-16. Drlg. 2,660 ft.

Danciger O. & R. Co. No. 1 J. F. Neugent, C Lot 3, Blk. 12, sec. 23-23-16. Drlg. 4,197 ft.

Duncan & Woods No. 1 Andrews, Lot 5, Blk. 21, sec. 23-23-16. Drlg. 2,562 ft.

Haynes Prod. Co. No. 10 Lawton, NE SW sec. 14-22-16. Set 7-in. 6,021 ft.; Comp. 157 bbls. per hour 6,041 ft.

Haynes Prod. Co. No. 11 Lawton, 330 ft. N, 490 ft. E, SW cor. sec. 14-23-16. Drlg. 4,971 ft.

Haynes Prod. Co. No. 12 Lawton, NE cor. SW SW sec. 14-23-16. Set 12½-in. 252 ft.; drlg. 4,278 ft.

Haynes Prod. Co. No. 13 Lawton, NW cor. SE SW sec. 14-23-16. Set 12½-in. 252 ft.; drlg. 2,442 ft.

Haynes Prod. Co. No. 4 Otwell, SE cor. sec. 15-23-16. Drlg. 5,754 ft.

Haynes Prod. Co. No. 5 Otwell, NE cor. SE SE sec. 14-23-16. Set 9⅝-in. 2,082 ft.; drlg. 4,390 ft.

Haynes Prod. Co. No. 2-B Pitts, SE cor. NW SE sec. 12-23-16. Set 7-in. 5,845 ft.

Haynes Prod. Co. No. 3-A Mattie Pitts, SE cor. SE SW sec. 11-23-16. Set 12½-in. 250 ft.; drlg. 1,795 ft.

Haynes Prod. Co. No. 2 Zyiks, NE cor. SW sec. 10-23-16. Set 9⅝-in. 2,072 ft.

J. Edward Jones No. 1 Ashley, Lot 6, Blk. 13, sec. 22-23-16. Drlg. 2,979 ft.

R. W. Norton No. 1 J. Elder Unit, NE cor. sec. 23-23-16. Set 7-in. 6,030 ft.

W. F. Lacey No. 1 Tyson, NE cor. SE NW sec. 24-23-16. Drlg. 4,198 ft.

Lyons & Neely No. 1 Blaxton, C Lot 11 and 12, Blk. 22, sec. 22-23-16. Drlg. 5,473 ft.

M. H. Marr No. 3 Hunter, NW cor. SW sec. 13-23-16. Set 7-in. 6,017 ft.

M. H. Marr No. 5 Hunter, NW cor. SW sec. 13-23-16. Drlg. 3,707 ft.

M. H. Marr No. 1 Peak, SW SE sec. 11-23-16. Drlg. 5,793 ft.

R. W. Norton No. 4-A Caddo Levee Board, NW NE sec. 21-23-16. Drlg. 2,212 ft.

R. W. Norton No. 1 Spearman Unit, 1,980 ft. N, 1,155 ft. W, SE cor. sec. 18-23-15. Comp.; 9 B.P.H.; 5,000,000 ft. gas 6,057 ft.

R. W. Norton No. 1 Slattery, NW cor. sec. 25-23-16. Drlg. 5,380 ft.

Travis et al No. 1 Raney, 990 ft. W of C sec. 17-23-15. Testing 6,080 ft.

Tri-State-Williams & Peterbaugh No. 1 Ellis, Lot 2, Blk. 20, Townsite, sec. 23-23-16. Drlg. 5,457 ft.

United Gas Pub. Ser. Co. No. 5 Ardis & Co., SW SE sec. 14-23-16. Set 7-in. 5,991 ft.; comp. 35 bbls. per hour 6,009 ft.

United Gas Pub. Ser. Co. No. 6 Ardis & Co., SE cor. sec. 14-23-16. Drlg. 5,479 ft.

United Gas Pub. Ser. Co. No. 7 Ardis & Co., SW cor. SE SW sec. 14-23-16. Drlg. 4,509 ft.

United Gas Pub. Ser. Co. No. 1 Gipson Unit, NE SW sec. 15-23-16. Comp. 60 bbls. per hour 6,008 ft.

United Gas Pub. Ser. Co. No. 1 Marson Unit, 330 ft. S and E, NW cor. sec. 24-23-16. Drlg. 3,368 ft.

United Gas Pub. Ser. Co. No. 2 M. L. Pitts Unit, NE SW sec. 13-23-16. Testing 6,069 ft.

United Gas Pub. Ser. Co. No. 3 M. L. Pitts Unit, NE SW sec. 13-23-16. Drlg. 5,710 ft.

United Gas Pub. Ser. Co. No. 4 M. L. Pitts Unit, SW cor. sec. 13-23-16. Drlg. 5,006 ft.

United Gas Pub. Ser. Co. No. 2 N. S. Spearman Unit, SW NW sec. 18-23-14. Drlg. 3,779 ft.

United Gas Pub. Ser. Co. No. 2 Thomas Unit, NE cor. sec. 23-23-16. Comp. 62 bbls. per hour 6,016 ft.

United Gas Pub. Ser. Co. No. 8 Tyson Unit, SW NW sec. 13-23-16. Drlg. 4,708 ft.

United Gas Pub. Ser. Co. No. 9 Tyson, NE cor. sec. 14-23-16. Drlg. 5,625 ft.

United Gas Pub. Ser. Co. No. 11 Rodessa Oil & Land Co., NW cor. sec. 23-23-16. Set 7-in. 5,956 ft.

United Gas Pub. Ser. Co. No. 12 Rodessa Oil & Land Co., 1,320 ft. N, 148 ft. W, C sec. 22-23-16. Comp. 58 bbls. per hour 6,010 ft.

United Gas Pub. Ser. Co. No. 13 Rodessa Oil & Land Co., SW NE sec. 22-23-16. Drlg. 3,922 ft.

United Gas Pub. Ser. Co. No. 14 Rodessa Oil & Land Co., NE cor. sec. 22-23-16. Drlg. 3,831 ft.

United Gas Pub. Ser. Co. No. 15 Rodessa Oil & Land Co., NE cor. sec. 22-23-16. Drlg. 5,153 ft.

United Gas Pub. Ser. Co. No. 16 Rodessa Oil & Land Co., NE cor. NW NW sec. 22-23-16. Drlg. 4,177 ft.

United Gas Pub. Ser. Co. No. 2 I. L. Young, 1,944 ft. N, 605 ft. W, SE cor. sec. 21-23-16. Comp. 46 bbls. per hour 5,995 ft.

Sabine Parish—Zwolle

Ellis Prod. Co. No. 1 Williams, 330 ft. S and W, NE cor. SE NE sec. 23-7-11. Tested dry; S.D.; W.O. 2,806 ft.

N. LOUISIANA WILDCATS

Bienville Parish

DeSoto O. & G. Co. No. 1 C. R. Mower, 270 ft. S, 400 ft. W, NE cor. NW SW sec. 9-16-10. coring 3,030 ft.

Lide & Greer No. 1 Davis Bros. Lbr. Co., 660 ft. S and W, NE cor. SE sec. 12-16-5w. Comp. 70,750,000 ft. gas 6,141 ft.

Bossier Parish

Geo. H. Bringhurst et al No. 1 Buckley, NE SW sec. 26-21-13. Set 7-in. 2,295 ft.

United Gas Pub Ser. Co. No. 1-A A. J. Murff, NW cor. sec. 17-17-11. Coring 4,285 ft.

Caddo Parish

Falcon Oil Co. No. 15 Deckson, NW SE sec. 27-20-15. Deepening from 2,325 ft.

Hillman et al No. 2 Muslow, NW SE sec. 32-21-15. Junked and abd. 2,140 ft.

Juan et al No. 1 Hobbs, NE NE sec. 32-21-15. W.O.S.R. 1,669 ft.

Pyramid O. & G. Co. No. 1-A S. R. Wheeler, 1,320 ft. S, 1,500 ft. W, NE cor. sec. 16-18-16. Drlg. 3,970 ft.

Sport Oil Corp. No. 1-D Muslow, SE cor. sec. 5-20-15. Drlg. 2,613 ft.

Caldwell Parish

Critchett & Woods No. 1 Kyles, NE cor. SW NE sec. 18-11-3e. P.B. to 1,300 ft.; old T.D. 1,740 ft.

Critchett & Woods No. 2 La. Cen. Lbr. Co., NW cor. NW SE sec. 18-11-3e. Drlg. 200 ft.

Claiborne Parish

E. T. Oakes No. 1 H. W. Patton Est., 660 ft. S and W, NE cor. sec. 1-20-5w. Junked and abd. 4,242 ft.

Triangle Drlg. Co. No. 1 Kilpatrick, 660 ft. N and E cen. sec. 7-19-5. Coring 4,840 ft.

United Gas Public Service Co. No. 2 Durfett, 660 ft. N and 1,980 ft. E. SW cor. sec. 31-20-5. Coring 5,943 ft.

Concordia Parish

Zoni Oil Co. No. 1 Young, 1,200 ft. W, 100

ft. N, SE cor. sec. 28-6n-8e. S.D. 1,120 ft.

De Soto Parish

S. S. Alexander No. 1 G. R. Stell, 330 ft. S and W, NE cor. sec. 5-12-16. Coring 5,740 ft.

A. G. Halbach et al No. 1 Staton, 150 ft. N and E, SW cor. SE sec. 29-13-14. S.D. 3,204 ft.

R. C. Payne No. 1 Harris, NE cor. SW SE sec. 11-13-14. Drlg. 1,080 ft.

Union Pet. Co. No. 1 Hill, sec. 3-10-13. S.D. 1,400 ft.

Franklin Parish

S. C. Jensen No. 1 Bailey, 660 ft. N and W of C sec. 12-11-6e. Set 12⅛-in. 206 ft.

Grant Parish

Alexander et al No. 1 Maxwell, sec. 9-9-1e. W.O.S.R. 1,538 ft.

Law Oil Co. No. 1 Long, SE cor. SW sec. 9-9-1e. Set 10-in. 60 ft.; testing 1,559 ft.

Taw Oil Co. No. 2 Bradford, sec. 16-9-1e. Drlg. 522 ft.

Taw Oil Co. No. 1 Bradford, NE cor. NW sec. 16-9-1e. Set 10-in. 60 ft.

La Salle Parish

Montague Oil Co. No. 7-A Zenonia Lbr. Co., NE cor. sec. 10-9-1e. Tested S.W. and W.O. 1,520 ft.

Lincoln Parish

Ark.-La. Gas Co. No. 1 C. E. Causey, NW cor. NE NW sec. 32-19-2w. Coring 4,471 ft.

Caldwell Land & Timber Co. No. 1 J. K. Hammons, 330 ft. S and E, NW cor. SE SW sec. 20-18-1w. S.D. 640 ft.

Herman L. Brown et al No. 1 S. Gardner, 330 ft. N, 330 ft. E, SW cor. NW NE sec. 10-17-4w. S.D. 4,587 ft.

Morehouse Parish

J. B. Collins et al No. 1 E. M. Clarke, SE NE sec. 10-20-7e. Rigging up.

United Gas Pub. Ser. Co. No. 33 Crossett, NE cor. sec. 34-21-4e. Set 7-in. 2,091 ft.

United Gas Pub. Ser. Co. No. 35 Crossett, sec. 22-21-4e. Drlg. 1,126 ft.

United Gas Pub. Ser. Co. No. 19 Tensas, NE SW sec. 5-21-4e. Set 7-in. 2,108 ft.

Richland Parish

J. S. Morrisey No. 1 Jones, 1,293 ft. N, 636 ft. E, SW cor. sec. 15-18-7e. S.D. 1,370 ft.

Arthur Wray No. 1 Slocum, 2,436 ft. S 660 ft. W, NE cor. sec. 10-17-6e. S.D. 1,676 ft.

Sabine Parish

M. C. Forsman No. 1 Patrick, NE SW sec. 21-9-13. Set 8-in. 75 ft.

J. E. Daughtie et al No. 3 Edwards, SW cor. sec. 29-9-13. Set 7-in. 1,518 ft.

Posey Sisters Oil Co. No. 2 A. J. Burkett, C NE NE sec. 10-9-13. Set 7-in. 1,440 ft.; W.O.S.R. 1,973 ft.

Claude H. Smith No. 1 Whitney Corp., 330 ft. S, 990 ft. W, NE cor. sec. 19-10-13. Set 7-in. 1,550 ft.; T.D. 1,615 ft.

A. H. Tarver No. 2 Baker, NW cor. NE sec. 36-8-12. D.S. stuck 5,200 ft.

Whitehurst & Myers No. 1 Paul, SE cor. SW sec. 24-9-14. Drlg. 1,736 ft.

Tensas Parish

H. M. Jones et al No. 1 Chicago Mill & Lbr. Co., NE cor. sec. 30-12n-10e. Drlg. 215 ft.

Union Parish

Boucher & Pace No. 1 Frost-Johnson, NE NE sec. 27-21-1e. Installing heavy rig 3,241 ft.

Interstate Nat. Gas Co. No. 46 fee, SE NE sec. 26-20-3e. Set 6-in. 2,101 ft.

United Gas Pub. Ser. Co. No. 3 Stovall, NE NW sec. 33-21-4e. Rigging up.

Vernon Parish

Llano Del Rio Co. No. 2 Gulf Lbr. Co., 1,385 ft. S, 1,000 ft. W, NE cor. sec. 7-1n-9w. S.D. 2,960 ft.

Webster Parish

J. L. Edwards No. 1 Hooper, 330 ft. * and E, NW cor. SW sec. 8-17-9. S.D. 2,114 ft.

J. P. Evans et al No. 1 T. Crichton, NE SE sec. 35-18-9. Drlg. 4,930 ft.

Ohio Oil Co. No. 1 R. L. Holloway, 660 ft. S, 760 ft. W, C sec. 23-21-10. Coring 6,883 ft.

SOUTH LOUISIANA FIELDS

Bayou Mallet—Acadia Parish

Superior Oil Co. No. 2 Bailey, sec. 47-7s-1e. T.D. 885 ft.; fsg.

Black Bayou—Cameron Parish

Shell Pet. Corp. No. 26 Watkins, sec. 18-12s-12w. Abd. 4,363 ft., salt.

Shell Pet. Corp. No. 31 Watkins, sec. 8-12s-12w. T.D. 5,587 ft.; P.B. to 5,387 ft.; swbg.

Shell Pet. Corp. No. 33 Watkins, 65 ft. S and 4,243 ft. W of NE cor. sec. 12-12s-12w. Rig.

Caillou Island—Terrebonne Parish

Texas Co. No. 2 Terrebonne Bay, sec. 19-23s-20e. T.D. 6,842 ft.; 7⅝-in. csg. 6,844 ft.; W.O.C.

Texas Co. No. 33 State, Sd. 4,115 ft.; no report.

Texas Co. No. 35 State, sec. 17-23s-20e. T.D. 4,647 ft.; I.P. 1,275 B.B.D.; ¾-in. choke.

Cameron Meadows—Cameron Parish

Burton Sutton Oil Co. No. 12 School Land sec. 16-14s-13w. T.D. 3,500 ft.; flowed 454 B.P.D. then went dead.

Burton Sutton Oil Co. No. 13 School Land, sec. 16-14s-13w. Drlg. sh. 2,312 ft.

Humble-Magnolia No. 16 Cameron Meadows Rig.

Texas Co. No. 2 Miami Corp., sec. 15-14s-13w. Drlg. sd. and sh. 3,915 ft.

Cheneyville—Rapides Parish

Texas Co. No. 1 Weil, sec. 53-1s-2e. R.U.

Texas Co. No. 2 Weil, sec. 53-1s-2e. Cg. sh. 5,715 ft.

Texas Co. No. 1 State (Andrade), sec. 5-1s-2e. S.D. 86 ft.

Choctaw Dome—Iberville Parish

Standard Oil Co. No. 8 Myrtle Grove Wilburt, sec. 52-9s-11e. T.D. 5,828 ft.; P.B to 2,450 ft. and sdtkd.; drlg. sh. 2,911 ft.

Darrow—Ascension Parish

Humble O. & R. Co. No. 11 Community, sec. 32-10s-2e. Drlg. sh. 5,138 ft.

Humble O. & R. Co. No. 6 Gumble, sec. 33-10s-2e. T.D. 6,157 ft.; P.B. to 3,017 ft.; sdtkd. at 3,027 ft.; drlg. sd. and sh. 5,104 ft.

Dog Lake—Terrebonne Parish

Texas Co. No. 3 State, sec. 5-22s-16e. Drlg. sh. 6,440 ft.

Edgerly—Calcasieu Parish

J. G. Sutton No. 17 Lillard, sec. 28-9s-11w. S.D. 1,552 ft.

Thompson & Mossart No. 1 Fairchild. Drk.

Four Isle—Terrebonne Parish

Texas Co. No. 5 State, sec. 24-21s-16e. Drlg. hd. sd. 3,767 ft.

Garden Island Bay—Plaquemines Parish

Texas Co. No. 18 State, sec. 27-22s-32e. T.D. 4,362 ft.; rng. electrical cg. test.

Gillis—Calcasieu Parish

Fohs Oil Co. No. 1 Frost, sec. 11-9s-8w. Cg. sh. 7,073 ft.

Fohs Oil Co. No. 1 Mary McIver, sec. 14-9s-8w. Derrick.

Union Sulphur Co. No. 1 J. A. Bel estate. Drlg. sh. 7,689 ft.

Union Sulphur Co. No. 1 G. S. Cole, sec. 12-9s-8w. Drlg. sh. 5,973 ft.

Union Sulphur Co. No. 6 Castle, sec. 13-9s-8w. T.D. 7,736 ft.; perforated csg. from 5,427-82 ft.; tested S.W. and gas.

Hackberry—Cameron Parish

Calcasieu Oil Co. No. 6 Hansen, sec. 14-12s-10w. Drlg. sh. 4,910 ft.

Gulf Ref. Co. No. 20 Irwin, sec. 12-13s-10w. T.D. 7,806 ft.; P.B.; drlg. sd. 7,042 ft.

Stanolind O. & G. Co. No. 16-A School Land, sec. 16-12s-12w. Drlg. sd. 3,078 ft.

Stanolind O. & G. Co. No. 21-B Gulf Land sec. 14-12s-10w. S.D. 6,963 ft.; top salt 6,948 ft.; P.B. and sdtkd.; drlg. in new hole at 4,273 ft.

Stanolind O. & G. Co. No. 23-B Gulf Land, sec. 14-12s-10w. Drk.

Texas Co. No. 19-B State, sec. 13-12s-9w. Cg. sd. with odor of oil 6,576 ft.; no report.

Iowa—Jefferson Davis Parish

Shell Pet. Corp. No. 20 Heyd, sec. 18-9s-7w. T.D. 5,275 ft.; P.B. to 5,246 ft.; I.P. 730 B.P.D. in 19 hrs. through ¼-in. choke.

Shell Pet. Corp. No. 7 Stafford, sec. 18-9s-7w. Drlg. sh. 5,344 ft.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 1 Banta, sec. 49-13s-9e. Drlg. hd. rock 7,190 ft.; no report.

Herton Oil Co. No. 1 Carter, sec. 38-13s-9e. Drlg. sd. and sh. 6,314 ft.

Herton Oil Co. No. 3 Roane, sec. 40-13s-9e. Drlg. sh. 4,412 ft.

Jennings—Acadia Parish

Shell Pet. Corp. No. 1 Conover, sec. 40-9s-2w. T.D. 6,383 ft.; making D.S.T.

Stanolind O. & G. Co. No. 16 Houssiere-Latrielle, sec. 47-9s-2w. Drlg. sh. 4,567 ft.

Lafitte—Jefferson Parish

Texas Co. No. 3 Rigolettes, sec. 30-17s-24e Top oil sd. 9,395 ft.; 7⅝-in. csg. 9,396 ft.; T.D. 9,455 ft.; W.O.C.

Lake Barre—Terrebonne Parish

Texas Co. No. 37 Lake Barre State, R.U.

Texas Co. No. 39 State, sec. 20-13s-20e. Drlg. L. 3,027 ft.

Leesville—LaFourche Parish

Gulf Prod. Co. No. 8 Allen Land Co., sec. 21-21s-22e. B.P.

Lincoln Oil Co. No. 2 Constentine, sec. 27-21s-22e. Drlg. sh. 3,322 ft.

Texas Co. No. 44 Leesville, sec. 27-21s-22e T.D. 4,200 ft.; preparing to test.

Texas Co. No. 45 Leesville, sec. 34-21s-22e. Drlg. wtr. sd. 4,269 ft.

Texas Co. No. 46 Leesville, sec. 27-21s-22e. Rig.

Roanoke—Jefferson Davis Parish

Humble O. & R. Co. No. 3 C. N. Taylor, sec. 12-9s-4w. Drlg. sdy. sh. 5,815 ft.; 10¾-in. csg. at 2,948 ft.

Shell Pet. Corp. No. 5 Kratzer, sec. 13-9s-4w. Drlg. 7,088 ft.

Port Barre—St. Landry Parish

Pacheon Oil Co. No. 1 Gauden, Sec. 4-6s-6e. T.D. 3,718 ft.; P.B. to 3,398 ft.

Pan American Prod. Co. No. 1 Watkins. T.D. 5,026 ft.; P.B. to 2,850 ft.; drlg. sh. 5,312 ft.

Texas Co. No. 1 Futral, sec. 20-6s-5e. Drlg. sh. 1,310 ft.

St. Martinville—St. Martin Parish

Continental Oil Co. No. 1 fee, sec. 18-11s-6e. Drlg. sh. 6,137 ft.

Tide Water Oil Co. No. 2 Smedes, sec. 57-11s-6e. T.D. 8,735 ft.; P.B. to 7,400 ft.; W.O.C.

Sorrento—Ascension Parish

Athens Oil Co. No. 4 United land, sec 15-10s-4e. T.D. 4,332 ft.; 7-in. csg. at 4,291 ft.; S.D.

Sorrento Oil Co. No. 1 Bernard, sec. 9-10s-4e. Derrick.

Starks—Calcasieu Parish

L. R. Welhite No. 1 Industrial Lbr. Co., sec. 19-9s-12w. T.D. 3,883 ft.; C.O.

Sulphur—Calcasieu Parish

Union Sulphur Co. No. 322 fee, sec. 29-9s-10w. Drlg. sh. 2,330 ft.

Tepetate—Acadia Parish

Continental Oil Co. No. 2 Homeseekers, sec. 29-7s-2w. T.D. 8,322 ft.; 5¾-in. csg. set on bottom.

Continental Oil Co. No. 2 C. Miller, sec. 29-7s-2w. Cd. gas sd. 8,290-8,304 ft.; cg. ahead for oil sd.

Continental Oil Co. No. 1 A. Ortego, sec. 29-7s-2w. Drlg. L. 7,400 ft.

Continental Oil Co. No. 1 Adras Young, sec. 29-7s-2w. Drlg. sh. 2,560 ft.

General Crude Oil Co. No. 1 Vincent, sec. 31-7s-2w. Loc.

Loffland Bros. No. 1-A L. C. Bowles, sec. 28-7s-2w. T.D. 8,380 ft.; S.W. sd. 8,363-80 ft.; rng. directional survey.

Loffland Bros. No. 1-B L. C. Bowles, sec. 28-7s-2w. T.D. 7,419 ft.; P.B. to 6,450 ft.; sdtkd. at 6,770 ft.; drlg. sh. 7,118 ft.

White Castle—Iberville Parish

Shell Pet. Corp. No. 3 Shingle, 650 ft. S, 600 ft. E of NW cor. sec. 12-11s-12e. Rig.

S. LOUISIANA WILDCATS

Acadia Parish

Magnolia Pet. Co. No. 1 Homeseekers Dev. Co., sec. 54-10s-1w. Rig.

Allen Parish

Humble O. & R. Co. No. 1 J. A. Bell, sec. 28-6s-7w. Drlg. sh. 1,200 ft.

Avoyelles Parish

Frost Oil Co. No. 1 Hinds Lbr. Co., sec. 3-3n-4e. R.U.

Cameron Parish

Magnolia Pet. Co. No. 1 Hebert, sec. 13-12s-9w. Rig.

West Feliciana Parish

R. L. Morris (C. L. Thompson) No. 1 Percy, sec. 89-1s-4w. Drlg. sh. 5,013 ft.

Iberia Parish

Canal Oil Co. No. 3 Sabatier, sec. 54-13s-7e. Drk.

Jefferson Lake Oil Co. No. 1 State, Twp. 13s-5e. T.D. 3,610 ft.; preparing to test through perforation 3,452-79 ft.

Jefferson Lake Oil Co. No. 322 State Lake Pleigneur. Drlg. sh. 4,027 ft.

Kitos Oil Co. No. 2-A Sealey, sec. 56-12s-7e. R.U.

Texas Co. No. 1 State Fausse Point. P.B. to 6,400 ft.; cmtd. whipstock and side-tracked at 5,781 ft.; T.D. 6,405 ft. in new hole; abd.

Jefferson Davis Parish

J. K. Lewis No. 1 Lockmore, sec. 32-7-6. Drlg. sh. 7,000 ft.

Shell Pet. Corp. No. 1 Lacassan, sec. 20-11s-5w. T.D. 9,802 ft.; P.B. to 8,176 ft.; prep. to sdtrk.

St. James Parish

Shell Pet. Corp. No. 1 Colonial Sugar, sec. 5-12s-5e. T.D. 6,382 ft.; prep. to make D.S.T.

St. Martin Parish

Southern Oil (S. C. Yingling et al) No. 1 State, sec. 13-9s-8w. T.D. 3,172 ft.; perf. csg. 3,010-50 ft.; flowed by heads and then went dead; making second test 2,957-65 ft.

Texas Co. No. 8 St. Martins Land, sec. 17-8s-7e. Drlg. L. and sh. 7,712 ft.

Rapides Parish

Foster Oil Co. No. 1 J. F. Hogan, sec. 2-1s-2e. T.D. 6,005 ft.; showed S.W. on D.S.T. from 5,702-51 ft.

Vermillion Parish

Continental Oil Co. No. 1 O. C. Hebert, sec. 20-12s-3e. R.U.

TEXAS

Week Ending April 11

GULF COAST FIELDS

Raccoon Bend—Austin County

Humble O. & R. Co. No. 6 Hardy, Wm. Smeathers Sur. Drlg. sh. 2,673 ft.

Humble O. & R. Co. No. 3-X Remment, Wm. C. White Sur. T.D. 4,110 ft.; 7-in. csg. at 4,039 ft.; I.P. 45 B.P.H.; ⅛-in. choke; T.P. 280 lbs.

Byron Mound—Brazoria County

Texas Co. No. 3 Freeport Sulphur Co., C. Areola Sur. Drlg. sdy. L. 3,253 ft.

Damon Mound—Brazoria County

Sinclair Prairie Oil Co. No. 24 Jackson, H. Darst Sur. Drlg. sh. 1,450 ft.

Hastings—Brazoria County

Humble O. & R. Co. No. 6 Cannon, H.T. &B. Sur. Drlg. sh. and L. 1,830 ft.

Stanolind O. & G. Co. No. 3 J. W. Miller, A.C.H.&B. Sur. No. 2. Drlg. sd. 1,729 ft.

Stanolind O. & G. Co. No. 2 Brown, H.T. &B. Sur. No. 29. T.D. 1,845 ft.; 10¾-in. csg. at 1,814 ft.

Stanolind O. & G. Co. No. 1 Droege Meyer, H.T.&B. Sur. No. 36. T.D. 6,052 ft.; 7-in. csg. 6,019 ft.; I.P. 216 bbls. in 8 hrs.; ¼-in. choke; T.P. 825 lbs.; C.P. 360 lbs.

Stanolind O. & G. Co. No. 4 Grote, A.C. H.T.&B. Sur. No. 2. Cg. sd. 6,030 ft.

Stanolind O. & G. Co. No. 4 B. L. Turney, A.C.H.&B. Sur. No. 1. Drlg. broken L. 4,223 ft.

Stanolind O. & G. Co. No. 4 Williams, A.C.H.&B. Sur. No. 1. Drk.

Manvel—Brazoria County

Bowles & Barsodi No. 5 Norvell, Lot 45 sec. 28, H.&T.C. Sur. T.D. 5,707 ft.; stg. 7-in. csg. at 5,680 ft.

Texas Co. No. 2-B Belcher, H. N. Little Sur. Drlg. sdy. L. 3,960 ft.

Texas Co. No. 21-B Belcher, H. N. Little Sur. Drlg. sh. and L. 1,701 ft.

Texas Co. No. 21 Houston Oil Field Assn., A.C.H.&B. Sur. No. 91. Drlg. sh. and L. 3,698 ft.

Texas Co. No. 5 O. L. Rash, T. Sproggins Sur. Drlg. sh. and L. 2,977 ft.

Turman Oil Co. No. 3 F. Hart, H.T.&B. Sur. No. 24. T.D. 5,729 ft.; oil sd.

Uscan Oil Co. No. 1 Wilson, H.T.&B. Sur. No. 23. T.D. 4,030 ft.; D.S.T. showed S.W. from 3,995-4,030 ft.

Anahuac—Chambers County

Humble O. & R. Co. No. 3 Grippon, H.& T.C. Sur. T.D. 7,241 ft.; 7-in. csg. at 7,042 ft.

Humble O. & R. Co. No. 1 C. A. Lord, H.&T.C. Sur. T.D. 7,231 ft.; P.B. 7,067 ft.; 7-in. csg. at 7,046 ft.

Humble O. & R. Co. No. 5 Tyrell, H.&T.C. Sur., sec. 52. Drlg. sh. 6,925 ft.

Humble O. & R. Co. No. 3 Wilcox, sec. 50, H.&T.C. Sur. Cg. sd. at 7,092 ft.

Humble O. & R. Co. No. 8 White, James McGahey Sur. T.D. 7,101 ft.; perf. lnr. from 7,086-99 ft.; testing.

Sun Oil Co. No. 11 White, J. McGahey Sur. Drlg. sh. and L. 6,399 ft.

Sun Oil Co. No. 12 White, James McGahey Sur. Drlg. L. 3,344 ft.

Barbers Hill—Chambers County

Sinclair Prairie No. 19 Wilburn, Henry Griffith Sur. T.D. 5,200 ft.; W.O.C. at 4,705 ft.

Stanolind O. & G. Co.'s No. 29 Chambers, Wm. Bloodgood Sur. Derrick.

Superior Oil Co. No. 2-B Barber, T.D. 5,379 ft.; swbd. little oil and wash wtr.

Turtle Bay—Chambers County

Stanolind O. & G. Co. No. 2 Middleton, M. A. Carroll Sur. Drlg. sh. 3,223 ft.

Stanolind O. & G. Co.-State No. 1 Turtle Bay, T.D. 7,459 ft.; P.B. 6,715-6,565 ft. and from 5,500-5,400 ft.; set whipstock at 5,415 ft.; P.B. from 4,130 ft. to 3,980 ft.; set whipstock at 3,980 ft.

Big Creek—Fort Bend County

Gulf Oil Corp. No. 68 Davis, M. Young Sur. Drlg. sh. 3,530 ft.

Blue Ridge—Fort Bend County

Ben Barnett No. 1 Blakely, E. Drew Sur. T.D. 2,058 ft.; R.U. to pump.

Mills Bennett No. 4 Luscher, T. Habermacher Sur. Drlg. sh. 3,550 ft.

D. M. Wallace and Woodley Pet. Co. No. 2 Blakely, E. Drew Sur. T.D. 3,962 ft.; P.B. to 3,938 ft.; tested S.W.; P.B.

Boling—Wharton County

Texas Co. No. 16-A Anne Taylor, S. F. Austin Sur. T.D. 3,484 ft.; 7-in. at 3,430 ft.; drlg. plug; comp.; no gauge.

Orchard—Fort Bend County

Gulf Prod. Co. No. 44 Moore, Leo Burknapp Sur. Drlg. sh. 5,797 ft.

Gulf Ref. Co. No. 45 Moore, German Immigration Sur. No. 8. Sd. 6,705 ft.; S.D.

Gulf Oil Corp. No. 4-A Moore, J. Fraser Sur. Drlg. 1,012 ft.

High Island—Galveston County

Stanolind O. & G. Co. No. 5 B.&N.O., Fitzsimmons Sur. T.D. 6,477 ft.; P.B. 5,795 ft.; 7-in. csg. at 5,755 ft.; prep. to P.B.

Stanolind O. & G. Co. No. 54 Cade, W. Fitzsimmons Sur. Drlg. sd. 5,344 ft.

Stanolind O. & G. Co. No. 55 Cade, Wm. Hudson Sur. Drlg. sh. 4,560 ft.

Stanolind O. & G. Co. No. 1 Cooper, M. Dunman Sur. Bldg. drk.

Stanolind Oil & Gas Co. No. 18-H Smith Royalty, M. Dunman Sur. T.D. 5,939 ft.

Dickinson—Galveston County

Coast Pet. Co. No. 3 Stewart, W. K. Wilson Sur. T.D. 3,565 ft.; 7-in. csg. 3,565 ft.; perf. csg. 3,535-45 ft.; I.P. 600 B.P.D.; ¼-in. choke; T.P. and C.P. 1,150 lbs.

Humble O. & R. Co. No. 2 Magie, J. S. Jones Sur. Drlg. 5,229 ft.

Humble O. & R. Co. No. 3 E. E. Townes, J. S. Jones Sur. Bldg. foundations.

Humble O. & R. Co. No. 2-B Bayou Dev. Co., J. Sellers Sur. Drlg. sh. 8,512 ft.

Humble O. & R. Co. No. 7-A Stewart, J. Sellers Sur. Drlg. sh. 2,020 ft.

Pure Oil Co. No. 3 Shelar, B.B.B.&C. Sur. T.D. 8,052 ft.; 7-in. csg. 8,025 ft.; swbd. fluid level at 3,000 ft.; 1,300 lbs. gas pressure.

Stanolind O. & G. Co. No. 5 State, Tract 3. T.D. 6,730 ft.; rmg.

Batson—Hardin County

Nimrod Prod. Co. No. 1 Butler, W. Donoho Sur. S.D. 85 ft.

Saratoga—Hardin County

John Deering No. 1 Teel, Thomas Gaines Sur. Rig.

Pierce Junction—Harris County

Gulf Oil Corp. No. 3 Manchester, J. A. Williams Sur. Drlg. sh. 2,213 ft.

Harrison and Abercrombie No. 2 Ritter-J. Hamilton Sur. T.D. 5,535 ft.; P.B. 3,800 ft.

Rio Bravo Oil Co. No. 10 fee, B.B.B.&C Sur. T.D. oil sd. 4,635 ft.; 7-in. csg. at 4,332 ft.; sdtkd. at 4,029 ft.; cg. 4,130 ft.; abd. 4,137 ft.

Wright et al No. 4 Gulf Jones fee, J. A. Williams Sur. Drlg. oil sd. 2,431 ft.

Humble—Harris County

Texas Co. No. 51 Stevenson, J. B. Stevenson Sur. T.D. 2,671 ft.; P.B. 2,627 ft.; 7-in. csg. at 2,603 ft.; comp. for gas well; T.P. 1,000 lbs.; C.P. 740-60 lbs.

Mykawa—Harris County

West Prod. Co. No. 9 Irwin, W. B. Walker Sur. Drlg. sh. 3,555 ft.

South Houston—Harris County

Dick Schwab No. 1 T. Bennett, H.T.&B. Sur. No. 6. Drlg. sd. and sh. 700 ft.

Smith & McDannald No. 1 R. R. Reynolds, H.T.&B. Sur. No. 6. Drlg. sh. 2,-650 ft.

Stanolind O. & G. Co. No. 1 W. A. Griffin, H.T.&B. Sur. No. 6. Cellar.

Stanolind O. & G. Co. District No. 4, H. T.&B. Sur. T.D. 4,835 ft.; 7-in. csg. at 4,803 ft.

Stanolind O. & G. Co. District No. 6, H. T.&B. Sur. T.D. 4,775 ft.; 7-in. csg. 4,-599 ft.; I.P. 257 bbls. in 14 hrs.; ¼-in. choke; T.P. 950 lbs.; C.P. 1,300 lbs.

Stanolind O. & G. Co. District No. 7, H. T.&B. Sur. T.D. 4,772 ft.; I.P. 54 bbls. in 15 hrs.; ¼-in. choke; T.P. 400 lbs.; C.P. 500 lbs.

Stanolind O. & G. Co. District No. 20, H. T.&B. Sur. Drlg. L. 3,684 ft.

Sterling O. & R. Co. No. 2 Summers, H. T.&B. Sur. No. 6. Drlg. sh. and L. 4,-906 ft.

Tomball—Harris County

Humble O. & R. Co. No. 4 Gassett, E. Smith Sur. Drlg. sh. 3,286 ft.

Humble-Magnolia No. 12 J. D. Reid, C. Goodrich Sur. Drlg. sh. at 2,910 ft.

Humble O. & R. Co. No. 13 Reid, C. Goodrich Sur. T.D. 5,549 ft.; 7-in. csg. at 5,-543 ft.; W.O.C.

Humble O. & R. Co. No. 1 Townsite area, J. House Sur. Drlg. sh. 4,302 ft.

Humble O. & R. Co. No. 1 West, Elizabeth Smith Sur. T.D. 5,560 ft.; 7-in. csg. on bottom; perforated 5,556-60 ft.; S.D.

J. E. Mabee No. 4 Baker, J. House Sur. Drlg. sh. and L. 5,425 ft.

Maurits—Jackson County

Shell Pet. Corp. No. 2 C. F. Combs, Morris & Cummings Sur. R.U.

Amelia—Jefferson County

Humble O. & R. Co. No. 1 Broussard C. Williams Sur. Abd. at 8,261 ft.

Humble O. & R. Co. No. 2 Guinn, C. Williams Sur. R.U.

Humble O. & R. Co. No. 3 R. C. Miller, A. Savery Sur. T.D. 7,882 ft.; P.B. to 6,503 ft.; sdtkd. at 6,503 ft.; drlg. sh. 6,797 ft.

Glenn McCarthy No. 2 Hessie Longe, H. Williams Sur. T.D. 5,423 ft.; 7-in. csg. 5,423 ft.; swbg.; showing oil and wash wtr.

Big Hill—Jefferson County

Stanolind O. & G. Co. No. 3-A Pipkin and Davis, Wm. McFaddin Sur. T.D. 1,580 ft.; 16-in. csg. 1,570 ft.

Fannett—Jefferson County

Blue Eagle Oil Co. No. 2 Junker, W. H. Smith Sur. S.D. 5,837 ft.

Gulf Oil Corp. No. 18 Thomas, W. H. Smith Sur. Drlg. sh. 5,169 ft.

Cleveland—Liberty County

Gulf Oil Corp. No. 14-C Kirby, C. J. Pleasant Sur. Drlg. 3,876 ft.

Esperson—Liberty County

Crown Pet. Co. No. 1 Davis, D. Kokernot Sur. Drlg. sh. 3,150 ft.

General Crude Oil Co. No. 14 Davis, D. Kokernot Sur. Derrick.

General Crude Oil Co. No. 25 Esperson, Wm. Bloodgood Sur. Drlg. sh. 2,913 ft.

Hankamer—Liberty County

Gulf Oil Corp. No. 24 Boyd, Amos Allen Sur. Drlg.

Gulf Oil Corp. No. 6 Crow and Jacobs, H.T.&C. Sur. No. 21. Drlg. sh. 4,365 ft.

Hardin—Liberty County

Atlantic Oil & Prod. Co. et al No. 1 Hardy, James Robinson Sur. 10¾-in. csg. 1,040 ft.; drlg. sh. 7,277 ft.; top Cockfield 7,-954 ft.

Hull—Liberty County

Humble O. & R. Co. No. 39 Guedry, J. Devore Sur. T.D. 4,138 ft.; 7-in. csg. at 4,032 ft.; I.P. 21 B.P.H.; ¼-in. choke; T.P. 610 lbs.; C.P. 750 lbs.

Van Vleck—Matagorda County

Skelly Oil Co. No. 1 Langham, M. Cummings Sur. Drlg. sh. and L. 4,200 ft.

Skelly Oil Co. No. 4-B Cobb, M. Cummings Sur. T.D. 7,502 ft.; 7⅝-in. csg. 7,502 ft.; perf. csg. 7,480-97 ft.; I.P. 524 bbls. in 16 hrs.; ¼-in. choke; T.P. 1,-600 lbs.; C.P. 2,275 lbs.

Markham—Matagorda County

Hamill & Hamill No. 4 Hudson, H. Parker Sur. Rig.

Conroe—Montgomery County

Humble O. & R. Co. No. 13 Dobbin, Ransom House Sur. R.U.

Sun Oil Co. No. 18 Foster, C. B. Stewart Sur. T.D. 5,082 ft.; 7-in. csg. at 5,000 ft.; swbg.

Sun Oil Co. No. 26 Foster. Drk.

Orange—Orange County

Texas Canadian Oil Co. No. 1 Bland. James Dyson Sur. Drk.

Port Neches—Orange County

Texas Co. No. 6-B Polk, J. Beaumont Sur. T.D. 6,952 ft.; 7-in. csg. at 5,856 ft.; drilled plug; circulating and conditioning mud; P.B. to 5,721 ft.; set whipstock at 4,071 ft.; sdtkd. at 4,083 ft.

Greta—Refugio County

Hewitt & Daugherty No. 23 Lambert, Hardwick Sur. T.D. 756 ft.; W.O.C.

United Gas Co. No. 23 Lambert, Hardwick Sur. T.D. 5,852 ft.; cmtd. csg.; W.O.C.

Refugio—Refugio County

Sorey et al No. 1 Cable, Refugio townsite. T.D. 3,694 ft.; S.D.

United Gas Co. No. 17 Fox Hews Survey. T.D. 6,259 ft.; circulating.

Tomoconnor—Refugio County

Quintana Pet. Corp. No. 34-A Tom O'Connor, Swisher Sur. Drk.

Coletio Creek—Victoria County

American Liberty Oil Co. No. 2 Laughlen, R. Manchola Sur. T.D. 2,861 ft.; 7-in. csg. at 2,849 ft.

Artez Oil Co. No. 1 Dietzel, R. Manchola Sur. Abd. 3,015 ft.

Keeran—Victoria County

Gulf Oil Corp. No. 3 Keeran, DeLeon Sur. Drlg. hd. sd. 3,694 ft.

Placedo—Victoria County

American Liberty Oil Co. No. 4 Gray, S.A.&M.G. Sur. 7-in. csg. at 4,771 ft.; T.D. 4,771 ft.; I.P. 10 B.P.H.; ¼-in. choke; T.P. 450 lbs.

Barnsdall Oil Co. No. 3 J. M. Pickering S.A.&M.G. Sur. No. 5. T.D. 4,772 ft.; top oil sd. at 4,757 ft.

Barnsdall-Feimont No. 4 Pickering, A. Murray Sur. Drlg. sh. 2,740 ft.

Barnsdall Oil Co. et al No. 2 Wheless, J. M. Bronson Sur. T.D. 4,767 ft.; I.P. 32 B.P.H.; ¼-in. choke; T.P. 1,000 lbs.; C.P. 1,100 lbs.

Barnsdall-Costa No. 3 Wheless, S.A.&M. G. Sur. No. 5. R.U.

Benson-Jones No. 1 J. A. Janis, W. Rupley Sur. R.U.

Crown Central Pet. Co. No. 1 F. Gebrover, S.A.&M.G. Sur. No. 5. T.D. 4,782 ft.; 7-in. csg. at 4,765 ft.

Eastern Texas Pet. Co. No. 1 J. Hasek, S.A.&M.G. Sur. Drlg. sh. 1,790 ft.

Harrison & Abrocrombie No. 1 C. O. Vess, J. M. Bronson Sur. T.D. 6,441 ft.; P.B. to 4,475 ft.; W.O.C.

Sun Oil Co. No. 4 Marek, J. M. Bronson Sur. T.D. 4,776 ft.; 7-in. csg. at 4,754 ft.

Clay Creek—Washington County

Sun Oil Co. No. 3 Freeman, J. F. Perry Sur. T.D. 1,356 ft.; 7-in. csg. at 1,325 ft.

Sun Oil Co. No. 1 H. Lauter, N. Clay Sur. W.O.C. 318 ft.

Louise—Wharton County

Pure Oil Co. No. 3 Lancaster, M.&C. Sur., sec. 22. T.D. 5,154 ft.; 7-in. csg. at 5,-132 ft.

Pure Oil Co. No. 1 Rivers, sec. 19. T.D. 5,158 ft.; 7-in. csg. on bottom; pulling thg.

Pickett Ridge—Wharton County

Texas Co. No. 14-A Pierce, I.&G.N. Sur. No. 29. Drlg. gbo. at 1,046 ft.

Texas Co. No. 15-A Pierce, G.H.&S.A. R.R. right of way. T.D. 4,112 ft.; 7-in. csg. at 4,703 ft.; I.P. 15 B.P.H.; ¼-in. choke; T.P. 475 lbs.; C.P. 425 lbs.

Texas Co. No. 16-A Pierce, I.&G.N. Sur. T.D. 4,707 ft.; 7-in. csg. at 4,701 ft.; I.P. 17 B.P.H.; ¼-in. choke; T.P. 500 lbs.; C.P. 400 lbs.

Texas Co. No. 17-A Pierce, I.&G.N. Sur. Drk.

Texas Co. No. 18-A Pierce, I.&G.N. Sur. Drk.

Withers—Wharton County

Texas Co. No. 1-B Pierce, E.T. R.R. Sur., Abst. No. 108. Drlg. sh. and L. 3,450 ft.

Texas Co. No. 4-C Pierce, J. Caldwell Sur. Drlg. sh. and L. 2,757 ft.

Texas Co. No. 5-C Pierce, C. J. Caldwell Sur. Drlg. sd. 587 ft.

GULF COAST WILDCATS

Brazoria County

Gulf Oil Corp. No. 1 Fairfield, A. Robinson Sur. Drlg. sh. and L. 7,040 ft.

Strake Oil Corp. et al No. 1 D. K. Poole, J. W. Hardin Sur. S.D. 6,430 ft.

Texas Gulf Prod. Co. No. 1 Sparks. T.D. 3,975 ft.; fsg.

Chambers County

Salt Dome Oil Co. No. 3 Lawrence, Solomon Borrow. 10¾-in. csg. 1,415 ft.; T.D. 6,661 ft.; recovered 750 ft. of oil on D.S.T. 6,652-61 ft.; 7-in. csg. 6,647 ft.; W.O.C.

Calhoun County

Continental Oil Co. No. 2-A American Realty Co., Pedro Garcia Sur., Lot 1, Blk "C." T.D. 9,083 ft.; recovered 300 ft. of gas cut mud on D.S.T. 6,925-70 ft.; prepare to abd.

Crown Central Pet. Co. No. 1 M. C. Driscoll Benito Morales Sur. T.D. 7,010 ft.; rng. electrical cg. test.

Humble O. & R. Co. No. 2 Welder, Jose Maria Rios Sur. No. 1. R.U.

Matagorda Oil Corp. No. 1 Brundrett. Drlg. shale at 500 ft.; no report.

Colorado County

G. W. Johnson No. 1 Drymalla, T. Coleman Sur. S.D. 5,156 ft.

Sterling Oil & Roy. Co. No. 2-B Powell, I.&G.N. Sur., sec. 45. T.D. 5,920 ft.; flowing gas with spray of oil and S.W.; T.P. 1,300 lbs.; C.P. 925 lbs.

Fayette County

Ben G. Barnett No. 1 McKinnon, A. Zumwalt Sur. W.O.C. 201 ft.

Galveston County

Sun Oil Co. No. J. D. Hughes, W. M. C. Baker Sur. T.D. 8,613 ft.; milling at 8,-425 ft.

Grimes County

Crook Bros. No. 1 W. W. and J. C. Greir. Derrick.

Hardin County

Jack Frazier No. 1-A Olive Sternberg, J. Houston Sur. Rig.

S. Hindman No. 1 Howth, A. J. Cotton Sur. Rig.

David B. MacDaniel No. 1 Nona Mills, E. E. Manvel Sur. R.U.

Harris County

Amerada Pet. Corp. et al No. 1 Dopslous W.C.R.R. Sur., Blk. 1, sec. 2. Rig.

Amerada Pet. Corp. No. 1 Nellie Esperson, George Patrick Sur. 13⅜-in. csg. 667 ft.; drlg. sh. 2,862 ft.

Bunte O. & G. Co. No. 1 Lobit et al, Benjamin Barrow Sur. Drk.

Jefferson County

Magnolia Pet. Co. No. 1 Funches, sec. 16, H.T.&B. Sur. Drlg. sh. 4,075 ft.

Glenn H. McCarthy No. 1 Pitt, J. M. Duran Sur. Rig.

Sun Oil Co. No. 1 Herbert & Broussard, B. Blackman Sur., Abst. No. 2. T.D. 8,-324 ft.; cmtd. back from 7,377-7,265 ft.

Smith and McDannald No. 1 Grennell, Blk. 3, H.&T.C. Sur. T.D. 3,866 ft.; S.D.

Matagorda County

Continental Oil Co. No. 1 Peife, J. S. Criswell Sur. T.D. 7,629 ft.; P.B. to 6,824 ft.; cutting and pulling 8⅝-in. csg.

John Deering No. 1 Estelle, Tone and Jameson Sur. Drlg. sh. at 6,590 ft.

Heimerich & Payne, No. 1 Hawkins, D. McCarthy Sur. Perf. csg. 6,740-50 ft.; stuck tbg. at 6,730 ft.; fsg.

H. M. Smith et al No. 2 Wadsworth, Lot 33, Blk. 4, S. R. Fisher Sur. T.D. 1,300 ft.; 13⅜-in. csg. set 1,290 ft.; S.D.

Sun Oil Co. No. 1 Craig, Thomas Williams Sur. T.D. 5,999 ft.; cmtd. back from 5,-405-5,231 ft.; W.O.C.

Montgomery County

Chapman and Smith No. 1 Delta Land & Timber Co., T. Shepperd Sur. No. A-488. Drlg. sh. 3,530 ft.

Chapman & Smith No. 2 Delta Land & Timber Co., T. Shepherd Sur. D.&A. at 4,005 ft.

Mid-Texas Oil Co. No. 1 Security Trust, G. W. Loonin Sur. R.U.

Wm. Thompson et al No. 2 Scott, F. A. Wheeler Sur. Drlg. sh. 1,410 ft.

Wm. Thompson No. 1 Scott, F. A. Wheeler Sur. Drlg. sh. 1,660 ft.

Polk County

J. P. Lightfoot et al No. 1 Lynch Davidson, Houston County School Land Sur., Abst. No. 270. S.D. 3,135 ft.

Victoria County

Rowan-Hope No. 1 Scheel, J. M. Escallera Sur. Drlg. sh. 1,362 ft.

Washington County

W. D. Twichell et al No. 1 W. H. Hoxie, S. Ciampit Sur. S.D. 1,501 ft.

Wharton County

Pure Oil Co. No. 1 Paige, James Pirie Sur. T.D. 8,309 ft.; heaving sh.; rmg. at 8,-472 ft.

Sterling O. & R. Co. No. 1 Agnes Genger, J. Scott Sur. Cmtd. sur. csg. 730 ft.; S.D.

S. W. TEXAS WILDCATS

Atascosa County

Atascosa Trust No. 1 Domsch, 160 ft. S line, 300 ft. E line, 152-ac. lease, J. T. Russell Sur. 1,232. Drlg. 3,210 ft.

Bastrop County

Marts & Beavens No. 4 Riddle, 800 ft. W line, 600 ft. S line tr., Maxmillian Sur. No report.

Bee County

Marine Oil Co. No. 1 Hearn, 2,000 ft. E No. 1 Words, E. Ryan Sur. T.D. 5,916 ft.; reworking.

Marine Oil Co. No. 1 Ray, 360 ft. E line, 330 ft. N line, 40-ac. tr., Anna Birks Sur. Cg. 2,515 ft.

H. A. Pressey No. 1 Hicks, 1,450 ft. of S line, 150 ft. of W line, lease, J. Urango grant. S.D. 2,630 ft.

Brooks County

California Co. No. 1 B. Garcia, 465 ft. N and W lines lease. B. Garcia tract, Salinas Sur. Cg. 5,408 ft.

Burleson County

Walter Blumenthal No. 1 Crane, W. C. Pierce Sur. No. 297. T.D. 6,328 ft.; P.B. 6,320 ft.; W.O.C.

Caldwell County

Chiquita Oil Co. No. 1 Hickman, 160 ft. N and W lines lease, G. Hinds Sur. Loc.

Dewitt County

Universal Oil, Gas & Mining Co. No. 1 Schnebel, 330 ft. S and W lines tr., Fitzgerald Sur. Testing 1,187 ft.

Duval County

C. G. Glasscock No. 1 Milano Land & Garden Co., Sur. 87. Set sur. csg. 47 ft.; stdg.

Frank Gravis No. 1 C. K. Gravis, 1,650 ft. SE line, 990 ft. SW line, Sur. 250. Drlg. 4,527 ft.

Hamil & Smith No. 1 Hubbard, sec. 69. Drlg. 1,511 ft.

Kepley Prod. Co. No. 1 Sevier, 330 ft. S line, 1,320 ft. E line, Sur. 71. T.D. 2,-261 ft.; rmg.

Magnolia Pet. Co. No. 1 Gray ranch, 330 ft. S and E lines, Sur. 556. Spudded in.

Cabildo Oil Corp. No. 1 Tinney, Sur. 8. Drlg. 1,723 ft.

Stanolind O. & G. Co. No. 3 Farmers Life Ins. Co., 330 ft. S and E lines, Sur. 559. Drlg. sh. 2,410 ft.

Edwards County

Paul Teas No. 1 Stewart, C SE¼ sec. 3, G.C.&S.F. Sur. Drlg. sh. 4,635 ft.

Goliad County

Cotton Belt O. & G. Co. No. 1 Lutenbacher, 330 ft. S and W lines, Blk. 35, Goliad townsite. Tried to blow out; stdg. with weighted mud in hole; T.D. 4,550 ft.

Magnolia Pet. Co. No. 1 Tipton, 330 ft. SE and SW lines, Thorman Sur. Drlg. 2,389 ft.

Gonzales County

Tull et al No. 1 Boska, 800 ft. S and E lines tr., McClure Sur. Drlg. 1,577 ft.

Guadalupe County

Paul Armstrong and J. E. Clark No. 1 Brodnaux, 150 ft. SE cor. 36-ac. tr., King Sur. No report.

J. E. Clark No. 1 Anderson, Green De Witte Sur. R.U.

J. E. Clark No. 1 Williams, DeWitte Sur. Drlg. 1,021 ft.

Hidalgo County

Gerald O. & G. Co. No. 1 Nelson Mortgage Co., Blk. 38, Lot A, LaDonna Tr. Drlg. sh. 1,079 ft.

Gulf States Oil Co. No. 3 John Engleman, Lot 3, Blk. 70. Drlg. sh. 2,923 ft.

Maxwell-Mundy No. 1 Hid. Wtr. Dist. No. 3, Lot 11, Blk. 20, Alamo Tr. Sd. 653-60 ft.; stdg.

Quintana Petroleum Co. No. 1 John C. Engleman, Lot 19, Blk. 94, Las Mestenas grant. Cg. 7,244 ft.

Dayle Smith No. 1 Fairbanks & Young, Blk. 44, Por. 46, jurisdiction of Reynosa. T.D. 1,640 ft.; stdg.

Jim Hogg County

French Oil Co. No. 2 Rodrigues, Sh. 3, Sur. 579, El Reyoto grant. R.U.

Jim Wells County

O. W. Killam No. 1 Reynolds, C S half Sur. 28. Drlg. 4,438 ft.

Muskogee Iron Works No. 1 Owens, 630 ft. N line, midway E and W lines, Sur. 151. Spudded.

G. M. Richardson No. 1 Garrett, 1,980 ft. S line, 1,640 ft. E line, sec. 5. Drlg. 2,413 ft.; (corrected).

Texon Roy. Co. and Lucey No. 1 Rolston, 330 ft. N and W lines, sec. 17, King Farm Lots. Drlg. 5,483 ft.

Karnes County

DeGraffe & Reese No. 1 Cochran, 460 ft. E line, 160 ft. S line, McConnell League. Spudded in.

Kerr County

Eastland Oil Co. No. 7 Love, 660 ft. N Evans & Gant No. 1 Love. Martines Sur. No. 1,594. Cmtng. off cavity; T.D. 1,-850 ft.

LaSalle County

Davenport & Talbott No. 1 Watkins, 1,-610 ft. S line, 330 ft. E line, Sur. 103. Drlg. 917 ft.

Paul Meader No. 1 Reed, sec. 136. Spudded in.

Live Oak County

W. A. Brooks No. 1 Terrill, 1,000 ft. NE R.R., 1,500 ft. S line lse., Juan Hooligan Sur. Drlg. 421 ft.

R. H. Feltner No. 1 J. T. Carter, 1,347 ft. NW line, 350 ft. NE line, 120-ac. tract, sec. 319. Cg. 3,343 ft.

Inter-Allied Pet. Co. No. 1 Aetna Life Ins. Co., 660 ft. NW and SW lines, Pointevent Sur. 3, Abst. 336. M.I.M.

McMullen County

R. J. Hill No. 1 Richardson, Sur. 158. Set sur. csg.; drlg. 711 ft.

Magnolia Pet. Co. No. 2 Kincaid, 330 ft. S and E lines, Sur. 36. Sd. 1,510-22 ft.; tested gas; drlg. 1,910 ft.

Reliance Oil & Roy. Co. No. 2 Shiner, 160 ft. N and E lines, SE¼, sec. 40. Drlg. 1,731 ft.

V. G. Schimmell No. 2 Two Rivers ranch, 330 ft. S and W lines, Sur. 58. Drlg. 111 ft.

Whisenant & Trenchard No. 1 Roos Bros C SE¼ SE, Sur. 93. T.D. 2,908 ft.; D. &A.

Nueces County

A. D. Cargray No. 2 Baldwin, 330 ft. N line, 550 ft. E line, Blk. 21, sec. 51. Drlg. 4,837 ft.

Coker & Lee Bros. No. 1 Geistman, 330 ft. N line, 660 ft. W line, 60-ac. tract, J. R. Ward Sur. No. 316. Sd. 3,161-65 ft.; sd. 3,160-65 ft.; tested 450 ft. oil and 100 ft. mud in 10 min.; comp. in pits; no gauge.

M. F. Hurlburt No. 1 Phillips, sec. 8, Flour Bluff Garden Tr. S.D. 3,983 ft.

O. W. Killam No. 1 Carter, 330 ft. N and W lines, Carter tr., Wright Subd. Spudded.

La Jita Oil Corp. No. 2 King, 660 ft. N and W lines, sec. 24, Cg. 4,005 ft.

Santa Clara Oil Co. (Atkins & O'Neil) No. 1 Cooke, 990 ft. N line, 330 ft. W line, sec. 14. Drlg. hd. sd. 4,610 ft.

San Patricio County

Benedum & Trees Oil Co. No. 1 Jones, 1,650 ft. E line, 990 ft. S line, NW¼ sec. 65. Rmg. sdy sh. 4,736 ft.

Benedum & Trees Oil Co. No. 2 Welder, sec. 19. Sd. 5,696-5,710 ft.; tested 200 ft. oil; 100 ft. mud in 4 min.; cg. 5,-800 ft.

Potrero Oil Co. No. 1 Welder, 2,000 ft. N and W lines, sec. 37. Drlg. 3,149 ft.

Santa Clara Oil Co. (Atkins & O'Neil) No. 4 Welder, 2,300 ft. SE line, 1,791 ft. NE line, 1,250-ac. tract, Villareal Sur. S.D. 5,483-88 ft.; drlg. ahead 5,614 ft.

Willis Storm No. 1 Nancy Hobba, 622 ft. NW and SW lines, 30-ac. tr. Cg. 5,277 ft.

Starr County

O. C. Borah No. 1 V. C. de Guerra, 3,500 ft. N line, 2,000 ft. E line, Sh. 92, Porc. 66. T.D. 897 ft.; D.&A.

J. H. Clopton No. 3 Kelsey-Bass, sec. 357. T.D. 700 ft.; D.&A.

Coreta Oil Co. No. 1 Haden, Share 47, Porc. 80. Drlg. 2,243 ft.

Webb County

Austin & Vernon's No. 1 Jeffries, 150 ft. NE line, 1,170 ft. SE line, Blk. 18, Su 1,403. Drlg. 1,397 ft.

La-Tex. Oil Co. No. 1 Lone Star Cattle Co., Porc. 12. T.D. 2,004 ft.; D.&A.

Mills Bennett Prod. Co. No. 1 Moglia, Sur. 723. Cg. 2,507 ft.

Willacy County

Shell Pet. Corp. No. 1 Yturria Land & Cattle Co., 990 ft. S and E lines, Share 94, San Juan de Carricitos grant. S.D. 2431 ft.

Zapata County

Ivan Howard No. 1 Martinez, 4,950 ft. SW line, 330 ft. NW line, Blk. 5, Sur. 246. No report.

Oklahoma Co. No. 1 Sanchez, Sh. 9, Blk. 37, Sanchez ranch. R.U.

Zavalla County

Burg Oil Co. No. 1 Calliant, sec. 43, A. B.&M. Sur. R.U.

W. L. Bridges No. 1 Price & Flowers, 1,-126 ft. N and W lines, Blk. 1, sec. 19. Set sur. csg. 360 ft.; W.O.C.

Frank Buttram No. 1 Whitecotton, 2,400 ft. N line, 300 ft. W line, A.B.&M. Sur. Drlg. 2,510 ft.

Leona Oil Co. and Witherspoon Oil Co. No. 1 West, 330 ft. E line, midway N and S lines, sec. 1, Bustillo Sur. Drlg. 4,010 ft.

S. W. TEXAS PROVEN

Caesar—Bee County

Box Oil Co. No. 2 Borrown, 810 ft. E line, 1,500 ft. N line tr., G. Baker Sur. R.U.

Dirks—Bee County

Dirks Bros. & McMurray No. 1 Harris, 200 ft. N line, 330 ft. W line, 61.9-ac. tr., Dugat Sur. R.U.

Illinois Pet. Co. No. 11-B Hall, 80-ac. tr., Butler Sur. Comp.; 16 B.P.H.; sd. 3,-815-91 ft.

Box Oil Co. No. 6 Page, 330 ft. SE line, 630 ft. NE line, Young Sur. Comp.; 16½ B.P.H. on ¼-in. choke; sd. 3,866-3,910 ft.

Texas Co. No. 18 Young, Butler Sur. Set csg. 3,910 ft.; comp.; 16 B.P.H.; ¼-in. choke; T.D. sd. 3,966 ft.

Pettus—Bee County

United Prod. Co. No. 52 Ray, T. Hanson Sur. Comp.; 92 B.P.D.; T.D. 3,964 ft.

Bay—Bee County

California Co. No. 1 Boothe, 330 ft. S and E lines, 100-ac. tr., Walker Sur. Drlg. 2,485 ft.

Magnolia Pet. Co. No. 1 Booth, W. B. Blanchard Sur. S.D. 4,164 ft.

Sunburst Oil Co. No. 2 Boothe, 660 ft. W of No. 1, 150 ft. NE line tr. T.D. 3,936 ft.; D.&A.

Hagist—Duval County

Morse Oil Co. No. 3 Hagist, 660 ft. SW of No. 2, Sur. 6. Spudded in.

Hoffman—Duval County

Duval Oil Corp. No. 2 Ruiz, 330 ft. S and W lines, Sur. 119. Comp.; 18 B.P.H.; sd. 2,862-82 ft.

W. D. Maston No. 1 Ruiz, Sur. 128. Set sur. csg.; W.O.C.

Plymouth Oil Co. No. 2 Cuellar, 330 ft. NW and NE lines tr., Sur. 117. T.D. 2,-885 ft.; testing.

Rogers & Rogers No. 2 Sutherland, 1,070 ft. S and E lines, E½ Sur. 120. T.D. 3,027 ft.; D.&A.

Standard Oil Co. of Kansas, 330 ft. SW of N line, 80-ac. tr., Sur. 118. Comp.; no gauge; sd. 2,873-77 ft.

Standard Oil Co. of Kans. No. 2 Hoffman, 80-ac. tr., Sur. 118. R.U.

Loma Novia—Duval County

Bridwell Oil Co. No. 16 B.C.C., 660 ft. N of No. 15, 120-ac. tr., Sur. 76. Set sec. on sd.; W.O.C.

Bridwell Oil Co. No. 3-C Hubbard, 330 ft. S and E lines, NW¼, Sur. 75. Testing T.D. sd. 2,607 ft.; comp.; 290 B.P.D.

Bridwell Oil Co. No. 4-C Hubbard, NW¼, Sur. 75. Comp.; no gauge; top sd. 2,-594 ft.

Bridwell Oil Co. No. 13-C Hubbard, 330 ft. N and W lines, Sur. 75. Sd. 2,584-2,600 ft.; comp.; 532 B.P.D.

Bridwell Oil Co. No. 14-C Hubbard, 660 ft. S of No. 13-C, Sur. 75. Top sd. 2,538 ft.; comp.; no gauge.

Bridwell Oil Co. No. 15-C Hubbard, 330 ft. S and W lines tr., Sur. 75. Drlg. 2,513 ft.

Duval Oil Corp. No. 17 B.C.C., Sur. 59. Sd. 2,535-51 ft.; comp.; 16 B.P.H.

Duval Oil Corp. No. 18 B.C.C., Sur. 59. Sd. 2,530-44 ft.; comp.; 12 B.P.H.

Duval Oil Corp. No. 19 B.C.C., 660 ft. N of No. 17, Sur. 59. Drlg. 2,110 ft.

Duval Oil Corp. No. 20 B.C.C., 660 ft. W of No. 18, Sur. 59. Cg. 2,510 ft.

Frank Gravis No. 4 Flodin, Sur. 78. M.I.M.

Highland Oil Co. No. 7 Hubbard, 330 ft. S and W lines, SE¼, Sur. 75. Set csg. 2,541 ft.; W.O.C.

Highland Oil Co. No. 9 Hubbard, SE¼, Sur. 75. Drlg. 2,110 ft.

Highland Oil Co. No. 15 Hubbard, Sur. 75. T.D. 2,728 ft.; comp.; 240 B.P.D.

Humble O. & R. Co. No. 9-A Hubbard, Sur. 84. Set csg.; T.D. 2,834 ft.; W.O. pump.

Humble O. & R. Co. No. 10-A Hubbard, Sur. 84. T.D. 2,858 ft.; swbg. in.

Humble O. & R. Co. No. 5-B Hubbard, Sur. 83. Rmg. to set csg. 2,801 ft.

Humble O. & R. Co. No. 6-B Hubbard, 990 ft. N and E lines, Sur. 83. T.D. 2,-782 ft.; comp.; 12 B.P.H. on ½-in. choke.

Humble O. & R. Co. No. 37-B Hubbard, E½, Sur. 72. Drlg. sh. 725 ft.

Humble O. & R. Co. No. 7-C Hubbard, Sur. 72. T.D. 2,712 ft.; W.O. pump.

Humble O. & R. Co. No. 8-C Welder, Sur. 554. T.D. 2,718 ft.; swbg. in.

Humble O. & R. Co. No. 36-B Hubbard, 272 ft. W line, 330 ft. N line, E½, Sur. 72. T.D. 2,710 ft.; comp.; 22.74 B.P.H. on ½-in. choke.

Magnolia Pet. Co. No. 24 Hahl, Sur. 67. T.D. 2,719 ft.; comp.; 65 B.P.D. on pump.

Magnolia Pet. Co. No. 26 Hahl, Sur. 67. Drlg. 300 ft.

Magnolia Pet. Co. No. 27 Hahl, Sur. 67. Sd. 2,644-49 ft.; comp.; 8 B.P.H.; open tbg.

Magnolia Pet. Co. No. 28 Hahl, Sur. 67. Sd. 2,596-2,612 ft.; set csg.; W.O.C.

Hiram Reed and J. T. Stover No. 1 C. W. Duke, 330 ft. N and E lines, SE¼ SE¼ Sur. 64. Cg. 2,567 ft.

Reynosa Oil Co. No. 1 Hubbard, Sur. 75. Sd. 2,549-72 ft.; set csg.; W.O.C.

Rosan Texia Oil Co. No. 13 Hubbard, 810 ft. W line, 330 ft. N line, S½, Sur. 84. Cg. 2,707 ft.

Shell Pet. Corp. No. 21 Hubbard, Sur. 77. Comp.; 13.4 B.P.H. on ½-in. choke; T. D. 2,727 ft.

Shell Pet. Corp. No. 3 Mendoza, 704 ft. N of No. 2, 330 ft. W line, Sur. 68. T.D. 2,777 ft.; swbg.

Shell Pet. Corp. No. 4 Mendoza, 2,442 ft. S line, 330 ft. W line, Sur. 68. M.I.M.

Sun Oil Co. No. 3 Hubbard, Sur. 84. Drlg. 2,570 ft.

Texas Co. No. 12 B.C.C., 990 ft. E line, 330 ft. S line, N½ sec. 59. Sd. 2,534-45 ft.; W.O.C.

Texas Co. No. 21 Wendt, 330 ft. N line, 3,481 ft. W line, Sur. 68. T.D. 2,726 ft.; comp.; 15,000,000 ft. gas per day.

Texas Co. No. 27 Wendt, Sur. 68. Sd. 2,-707-22 ft.; comp.; 12 B.P.H.

Texas Co. No. 30 Wendt, Sur. 68. Drlg. 137 ft.

Texas Co. No. 31 Wendt, 1,176 ft. S line, 2,778 ft. E line tr., Sur. 68. Comp.; 29½ B.P.H. on ¾-in. choke; T.D. 2,707 ft.

Texas Co. No. 32 Wendt, Sur. 68. Drlg. 2,021 ft.; (corrected).

Texas Co. No. 35 Wendt, Sur. 68. Cg. 2,-359 ft.

Valley Osage Oil Co. No. 7 Hubbard, Sur. 75. Sd. 2,590-2,601 ft.; comp.; est. 600 B.P.D. on ½-in. choke; T.D. 2,609 ft.

Piedra Lumbre—Duval County

Texas Co. No. 15 D.C.R.C., 330 ft. S line, 990 ft. E line, SW¼, Sur. 100. Comp. 10 B.P.H. on ¼-in. choke; sd. 1,947-70 ft.

Seven Sisters—Duval County

Atlantic Oil Prod. Co. No. 2-D Welder, 660 ft. W No. 1, 330 ft. E line, Sur. 113. Sd. 2,490-2,505 ft.; comp.; 18 B.P.H.

Atlantic Oil Prod. Co. No. 4-D Welder, 990 ft. N and E lines, Sur. 113. Comp.; 240 B.P.D.; T.D. 2,504 ft.

Atlantic Oil Prod. Co. No. 7-D Welder, Sur. 113. Comp.; 23 B.P.H.; T.D. 2,496 ft.

Atlantic Oil Prod. Co. No. 2-E Welder, S½, SW¼, Sur. 281. Drlg. 314 ft.

Buchanan & Blanco Oil Co. No. 1-B Welder, 330 ft. N and W lines tr., Sur. 591. D.S.T. 2,486-97 ft.; 1,000 ft. P.L.O.; 10 min.; T.D.; sd. 2,497 ft.; swbg.

S. B. Cloyes No. 1 Serna, 330 ft. N and E lines tr., Sur. 384. Loc.

Diamond Halff Oil Co. No. 3 Serna, 990 ft. E line, 330 ft. S line, N½, NE¼, Sur. 384. Sd. 2,195-2,204 ft.; comp.; 35 B.P. D. on pump.

Dulce Oil Co. and Henderson & Harvey No. 1-B Serna, Sur. 384. Sd. 2,187-2,208 ft.; drlg. in.

Humble O. & R. Co. No. 3 Badgley, Sur. 307. Rmg. to set csg.; T.D. sd. 2,537 ft.

Humble O. & R. Co. No. 10-A Serna, SW¼, Sur. 384. Sd. 2,464-68 ft.; D.S.T. 1,620 ft.; P.L.O.; W.O.C.

Humble O. & R. Co. No. 7-B Serna, SE¼, Sur. 384. M.I.M.

Humble O. & R. Co. No. 13-B Serna, SE¼, Sur. 384. T.D. oil sd. 2,508 ft.; comp.; 22 B.P.H. on ½-in. choke.

Humble O. & R. Co. No. 14-B Serna, SE¼, Sur. 384. Set sur. csg. 60 ft.; W.O.C.

Humble O. & R. Co. No. 8 T. D. Smith, Sur. 382. T.D. oil sd. 2,467 ft.; set csg.; W.O.C.

Mid-Continent Pet. Corp. No. 7 Serna, S½ N¼, Sur. 384. Sd. 2,200-08 ft.; spraying oil.

Navarro Oil Co. No. 1 Welder, 330 ft. E line, 2,970 ft. N line, Sur. 383. T.D. 2,-461 ft.; drld. plugs; W.O. flow line.

Parr Oil Co. No. 2 Welder, 990 ft. W line, 330 ft. N line, 80-ac. tr., Sur. 383. Sd. 2,432-46 ft.; W.O.C.

Reliance & Kleiner No. 3 Welder, 2,332 ft. E line, 330 ft. S line, S½, NE¼, Sur. 381. Set csg. 2,410 ft.; W.O.C.

Reliance Oil & Royalty Co. No. 4 Welder, S½, NE¼, Sur. 381. T.D. 2,421 ft.; perf. for comp.

Reliance Oil Co. No. 1-A Telford, 150 ft. N and W lines, NE 40-ac. tr., NW¼, Sur. 385. T.D. 2,212 ft.; testing.

Santa Clara Oil Co. (Atkins & O'Neil) No. 3-B Welder, Sur. 383. Sd. 2,487-2,500 ft.; comp.; no gauge.

Santa Clara Oil Co. (Atkins & O'Neil) No. 30 Welder, 330 ft. S line, 990 ft. E line tr., Sur. 383. D.S.T. 1,604 ft.; P.L.O. in 10 min.; rmg. csg.

Santa Clara Oil Co. (Atkins & O'Neil) No. 31 Welder, NE 160-ac. tr., Sur. 383. Skidding on.

Santa Clara Oil Co. No. 5-B Welder, SE cor. tr., Sur. 383. Spudded in.

Santa Clara Oil Co. and H. H. Henderson No. 2-C Welder, Sur. 381. Spudded in.

Santa Clara Oil Co. (Atkins & O'Neil) No. 9-D Welder, 330 ft. N and E lines, 25-ac. tr., Sur. 383. Comp.; no gauge; T.D. 2,431 ft.

Shell Pet Corp. No. 2-B Welder, 330 ft. W line, 990 ft. W line, E½ SE¼ Sur. 385. T.D. 4,004 ft.; D.&A.

Shell Pet. Corp. No. 6-A Welder, W½, SW¼, Sur. 385. Drlg. sh. 2,143 ft.

Westheimer & Daube No. 7 Campos, 330 ft. W line, 2,970 ft. S line, Sur. 224. Sd. 2,203-21 ft.; testing.

Pearsall—Frio County

Amerada Pet. Corp. No. 1 Correy & McWilliams, 660 ft. N line, 721 ft. W line, Tr. 17, Manuel Tijerina Sur. No. 300. T.D. 5,676 ft.; clg. and swbg. S.O.

Amerada Pet. Corp. No. 1 Correy & McWilliams, 1,980 ft. S line, 746 ft. W line, Tr. 3, Jose Arocha Sur. No. 299. T.D. 5,572 ft.; swbg. show little oil.

Amerada Pet. Corp. No. 1 Correy & McWilliams, 660 ft. S line, 728 ft. E line, Tr. 6, Jose Arocha Sur. 298. Drlg. 5,-130 ft.

Amerada Pet. Corp. No. 7 Halff & Oppenheimer, 1,320 ft. W line, 330 ft. S line, J. H. Gibson Sur. No. 16. Set csg. 3,-917 ft.; W.O.C.

Amerada Pet. Corp. No. 1 Kothman, 500 ft. N and W lines, B. L. Crouch Sur. No. 90/6. T.D. 5,407 ft.; tested 50 B.P. D. and 100,000 ft. gas; acidizing.

Amerada Pet. Corp. No. 2 Smith, 466 ft. E line, 2,771 ft. N line tr., J. V. Mason Sur. M.I.M.

T. Davis No. 1 Halff & Oppenheimer, 329 ac. tr., J. D. Clare Sur. 366½. T.D. 5,-433 ft.; C.O.

Gillette—Goliad County

Diamond Halff Oil Co. No. 2 Gillette, J. Gomez Sur. Comp.; 10 B.P.H.; T.D. 3,-698 ft.

Magnolia Pet. Co. No. 6 Scarborough, 600 ft. S of No. 4, Talley Sur. Set sur. csg. 232 ft.; W.O.C.

Zobrowiski-Guadalupe County

W. J. Walton No. 6 Zobrowiski, 1,000 ft. SE of No. 3, Clements Sur. Set csg. 2,-160 ft.; drlg. 2,170 ft.; chalk.

Clark—Guadalupe County

Eickenroht & Gallagher No. 1 Johns, 130 ft. E line, 450 ft. N line, 840-ac. tr., DeWitt Sur. 13. Drlg. 2,445 ft.

Ramona Oil Co. No. 1 Katie Say, 150 ft. W line, Davis Sur., 150 ft. S line lease. T.D. 2,407 ft.; pumping.

Mercedes—Hidalgo County

Union Sulphur Co. No. 7 American Rio Grande L. & I. Co., 4,000 ft. SE of No. 1 Farm, Tr. 3,309, Blk. 59. T.D. 7,530 ft.; to perforate.

Union Sulphur Co. No. 8 American Rio Grande L. & I. Co., 660 ft. N & E lines, Tr. 2,120, Blk. 87. Fsg. at 7,300 ft.

Union Sulphur Co. No. 9 American Rio Grande L. & I. Co., Farm Tr. 3,275, Blk. 59. Drlg. sh. 2,095 ft.

Samfordyce—Hidalgo County

James H. Anderson No. 3 Guerra, Tr. 264, Porc. 40. Sd. 2,732-48 ft.; set csg.; W. O.C.

J. T. Barlow No. 1 Marta Flores de Chapa, 230 ft. W line, 692 ft. S line, Tr. 250, Porc. 39. Sd. 2,951.5-55 ft.; D.S. T. 66 ft. P.L.O.; set csg. 2,951.5 ft.; W.O.C.

Dean Bros. No. 1 Lula George, 150 ft. S line, 230 ft. W line, 10-ac. tract, Tract 13, Porc. 40. Drlg. sh. 2,120 ft.

E. A. Graham No. 1 Eusebio Flores, 300 ft. S line, midway E and W lines, 26.48-ac. tr., Tr. 267, Porc. 38. Sd. 2,793-97 ft.; comp.; 40 B.P.D. on ¼-in. choke.

Henshaw Bros. No. 1 Seabury, Tr. 256, Porc. 58. Spudded in.

Frank Powell No. 1 George, Tr. 12, Porc. 41. Sd. 2,752-63 ft.; comp.; 40 B.P.D. on ¼-in. choke.

Weekly Oil Co. No. 1-B Guerra, 150 ft. S line, 230 ft. E line, 9.85-ac. tr., Tr. 13, Porc. 41. Sd. 2,765-72 ft.; comp.; 40 B. P.D. on 3/32-in. choke.

San Diego—Jim Wells County

Houston Oil Co. No. 1 Hawkins & Wallace, 990 ft. S and E lines, Blk. 11. Fsg. 6,301 ft.

Calliham—McMullen County

Swearingen et al No. 1 Calliham, 150 ft. N line, 275 ft. E line, Blk. 17, M. Holy Sur. Drlg. 1,663 ft.

Jacob—McMullen County

Loma Oil Co. No. 106-A Jacob, 660 ft. W of No. 105. Drlg. 120 ft.

Saxet Heights—Nueces County

Aaron Cohen No. 1 fee, 14/8-ac. tr. T.D. 4,085 ft.; comp.; no gauge.

Bartlett & Reed No. 1 Carson, SW cor., 20-ac. tr., Villareal Sur. M.I.M.

S. H. Bartlett No. 1 Harry Bartlett, 120 ft. W line, 200 ft. N line, 1.75-ac. tr., Villareal Sur. T.D. 4,116 ft.; comp.; 15 B.P.H. on 5/16-in. choke.

Capitol Oils, Inc., No. 1 L. Ayres, cen. 5-ac. tr., Villareal Sur. Set sur. csg.; W. O.C.

Circle Oil Co. No. 3 Whelan, 42.4-ac. tr., Villareal Sur. Drlg. 2,670 ft.

Conroe Drlg. Co. No. 2 John Dunn, Villareal Sur. Drlg. 3,523 ft.

Conroe Drlg. Co. No. 2 Hatch, 330 ft. W line, 990 ft. N line, 40-ac. tr. Perforated 4,094-96 ft.; comp.; 150 B.P.D. on ¼-in. choke.

Conroe Drlg. Co. No. 2 McBride, NE cor. 59-ac. tr. R.U.

J. K. Culton No. 5 Whelan, 60-ac. tr. R.U.

Culton & Republic Nat. Gas Co. No. 1-C Baldwin, 330 ft. N and W lines, Blk. 13. T.D. 7,020 ft.; D.&A.

J. K. Culton No. 3 Savage, 150 ft. N and W lines, 4-ac. tr. T.D. 4,084 ft.; comp.; 750 B.P.D.

Erin Oil Co. and Lee Bros. No. 1 Nut Club, 1.5-ac. tr., Lots 1, 2, 3, Blk. 1, Ellendale Gardens 2 and 3. P.B. to whipstock 3,700 ft.

Erin Oil Co. and J. H. Coker No. 1 Powell, Blk. 2, Ellendale Gardens No. 3. T.D. 4,077 ft.; comp.; 150 B.P.D.

Erin Oil Co. and J. H. Coker, No. 1 Powell, Blk. 2, Ellendale Gardens No. 3. Comp.; 150 B.P.D. on ¼-in. choke; T.D. 4,077 ft.

Erin Oil Co. No. 1 Spiller, cen. 1.6-ac. tr., Ellendale Gardens No. 3. M.I. rig.

L. Glasscock No. 1 Thornton, 5.37-ac. tr., Villareal Sur. Drlg. 2,021 ft.

Graham & Roberts No. 1 Carver, Ellendale Gardens. Set csg. 4,075 ft.; W.O.C.

J. T. Graham No. 1 Phillips, 200 ft. W line, 104 ft. N line tr. Sd. 4,072-79 ft.; cleaning in pits.

Tom Graham No. 1 Whelan, 330 ft. N and E lines, 40-ac. tr., Villareal Sur. T.D. 5,254 ft.; P.B. 3,700 ft.; to test.

D. H. Hawn No. 1 Hoxie, 1,300 ft. N of No. 1 Skipper. T.D. 4,127 ft.; D.&A.

Johnson et al No. 1 Cowles, 160 ft. W line, 75 ft. S line tr. T.D. 3,500 ft.; fsg.

Ray Johnson et al No. 1 Pearson, 2-ac. tr., Ellendale Gardens No. 2. Set csg. 4,079 ft.; W.O.C.

Ray Johnson No. 1 Smith, 3-ac. tr., Bancroft farm lots. Set sur. csg.; W.O.C.

J. P. Nash No. 1 Hatch, 330 ft. E line, 360 ft. N line tr., Blk. F. Top sd. 5,173 ft.; S.O.&G.; testing 5,175-86 ft.

Republic Nat. Gas Co. No. 3-B Baldwin, 44-ac. tr., Villareal Sur. Comp.; 320 B. P.D. on ¼-in. choke; T.D. 4,094 ft.

Republic Nat. Gas Co. No. 4-B Baldwin, 790 ft. SE of No. 2, 330 ft. NE line, Blk. 19. Spudded in.

Southern Minerals Corp. No. 2 Alkali, 660 ft. N of No. 1, midway E and W lines of tr. T.D. 4,085 ft.

W. A. R. Oil Co. No. 1 John Dunn, 3-ac. tr., N of old Shell Road. Set csg. on sd. 4,044-89 ft.; comp. 15 B.P.H. on 3/16-in. choke.

Taylor Ref. Co. No. 1 Kafer, Villareal Sur. Drlg. 2,872 ft.

Taylor Ref. Co. No. 2 Saunders, Villareal Sur. Drlg. 3,817 ft.

R. Y. Walker No. 1 Clark, Villareal Sur. Drlg. 2,610 ft.

Westgate Oil Co. No. 2 Sturm Est., 89-ac. tr., Villareal Sur. M.I.M.

Saxet—Nueces County

R. B. Bryan No. 1 Clarkwood Townsite, 105 ft. S line, 190 ft. W line tract, Blk. 14, Land Sur. 404. Drlg. 4,365 ft.

Tom Graham No. 2 Flato, Blk. 30. Set csg. 4,744 ft.; W.O.C.

Holliday Oil Co. No. 1 J. Griffith, 330 ft. S and E lines, 160-ac. tr., sec. 416. Sd. 5,616-44 ft.; comp. 512 B.P.D.

Houston Oil Co. No. 10 Morgan, sec. 7, Rincon del Oso Sur. Testing 4,857-64 ft.

Maryland O. & G. Co. No. 1 Winship, cen. Lot 3. Comp.; 7½ B.P.H.; T.D. 4,397 ft.

Morgan Gulf Oil Co. No. 3 Morgan, 990 ft. N and E lines, Sur. 403. Drlg. 4,-850 ft.

Renwar Oil Co. and Maryland Corp. No. 1 Manatt, cen. Blk. 5, Clarkwood townsite. R.U.

Republic Nat. Gas Co. No. 1-B Baldwin, 660 ft. S No. 3, 44-ac. tr. Drlg. 1,357 ft.

W. A. Richardson No. 3 Meredith, Lot 11, Clarkwood townsite. T.D. 4,422 ft.; washing in.

W. A. Richardson No. 1 Smith, C Blk. 4, Clarkwood townsite. Spudded in.

Southern Minerals Corp. No. 2 Isensee, cen. Blk. 7, Clarkwood townsite. Drlg. 3,221 ft.

Southern Minerals Corp. No. 4 Isensee, SE cor. 235-ac. tr., C. Land Sur. 404. M.I.M.

Southern Mineral Corp. No. 2 Smith, Blk. 4, Sheppard Farm Lots. T.D. 4,562 ft.; comp.; no gauge.

Southern Minerals Corp. No. 3 Smith, Blk. 4, Sheppard Farm Lots. Set csg. 4,554 ft.; W.O.C.

Southern Minerals Corp. No. 5-A Isensee, sec. 404. Drlg. 212 ft.

Texon Royalty Co. No. 1 Lingnau, 12.44-ac. tr., C. Land Sur. 404. M.I.M.

Texon Royalty Co. No. 1 Scogins, 330 ft. W line, 110 ft. N line, 150-ac. tr., Sur. A-818. Sd. 4,469-17 ft.; comp. in pits.

Texon Royalty Co. No. 2 Vance, 100 ft. N and E lines, 100-ac. tr., Gallagher Sur. 402. Sd. 4,403-24 ft.; set csg.; W. O.C.

Plymouth—San Patricio County

Humble O. & R. Co. No. 1 Bevly, 466 ft. N and W lines tr., Blk. 8, sec. 35, Taft Subd. Drk.

Plymouth Oil Co. No. 33-C Welder, 2,978 ft. S line, 2,395 ft. W line, sec. 49. T.D. 5,647 ft.; comp.; flowing in pits.

Plymouth Oil Co. No. 39-C Welder, 460.4 ft. S line, 1,770 ft. E line, sec. 71. T.D. 5,638 ft.; comp.; no gauge.

Plymouth Oil Co. No. 40-C Welder, 1,472 ft. W line, 3,119 ft. S line, sec. 49. Set csg. 5,545 ft.; W.O.C.

Plymouth Oil Co. No. 41-C Welder, 4,027 ft. S line, 1,244 ft. W line, sec. 49. Set csg. 5,503 ft.; W.O.C.

Plymouth Oil Co. No. 42-C Welder, 2,932 ft. N line, 2,043 ft. E line, sec. 49. Drlg. sh. and L. 5,040 ft.

Plymouth Oil Co. No. 43-C Welder, 2,046 ft. S line, 2,355 ft. W line, sec. 49. M.I.M.

Sun Oil Co. No. 4 Hunt, 466 ft. S and W lines, 154.39-ac. tr. Drlg. 4,511 ft.

Taft Field—San Patricio County

Humble O. & R. Co. No. 1 Godwin, 330 ft. S and W lines, sec. 23, Taft, Farm Lands, Third Addn. T.D. 4,100 ft.; P.B. to whipstock 3,800 ft.

Shell Pet. Corp. No. 1 Pullin, Blk. 4, sec. 1. Drlg. 2,940 ft.

Rio Grande City—Starr County

Fech Oil Co. No. 7 Frank Doyno, 150 ft. W line, 450 ft. N line, Blk. 4, Tr. 77-A, Porc. 81. T.D. 1,471 ft.; D.&A.

Samfordyce—Starr County

Phillips and Barnadall No. 8 Yturrice L. & R. Co., 110-ac. tr., E½ Porc. 100. Sd. 2,720-34 ft.; set csg.; W.O.C.

Porter & Pickens No. 3-B Garcia Land & Cattle Co., W½, Porc. 100. Drlg. sh. 2,349 ft.

Aviator—Webb County

Five Spot Drlg. Co. No. 1 Bruni, Blk. 44, Alberca grant. Spudded in.

Blas Uribe—Webb County

O. W. Killam No. 7 Bruni, Borrego grant. Sd. 1,106-13 ft.; dry; T.D. 1,226 ft.; D.&A.

Carolina-Texas—Webb County

Foster Barnaby No. 5 Webster, Sur. 684. T.D. 3,047 ft.; whipstocked 2,490 ft.; set csg.; W.O.C.; sd. 3,032-47 ft.

Cole—Webb County

Cole Pet. Co. No. 95 Rosa Benavides, Blk. 7, Sur. 7. P.B. 2,935-53 ft.; recming.

Lopez—Webb County

Hunter Co. No. 6 Billings, Sur. 112. Comp.; 10,000,000 ft. gas, 2,162 ft.

C. H. Lewis No. 5 Lopez, sec. 110. Sd. 2,241-52 ft.; comp.; 33 B.P.H.

C. H. Lewis No. 6 Lopez, sec. 110. M.I.M.

Luling O. & G. Co. No. 1 Peal, 330 ft. S and E lines, Blk. 11, Sur. 72. Sd. 2,-877-90 ft.; tested gas; 500 lbs. in 3 min.; cg. deeper.

Mills Bennett Prod. Co. No. 3 Montemayor, 2,310 ft. W line, 2,043 ft. N line, Sur. 114. Drlg. 1,633 ft.

Mills Bennett Prod. Co. No. 1 E. Valdez, Sur. 111. Comp.; 24 B.P.H.; T.D. 2,305 ft.

Mortimer & Springer No. 3 Paula Vela, Sur. 114. Sd. 2,190-2,206 ft.; W.O.C.

Mortimer & Springer No. 4 Paula Vela, Sur. 114. M.I.M.

Mortimer & Springer No. 9 Maria Lopez, Sur. 112. Sd. 2,226-43 ft.; drlg. plugs.

Mortimer & Springer No. 10 Maria Lopez, Sur. 112, 660 ft. N of No. 9. M.I.M.

Superior Oil Co. No. 4 A. S. Billings, Sur. 113. Sd. 2,126-45 ft.; comp.; no gauge.

Superior Oil Co. No. 5 A. S. Billings, Sur. 113. Drlg. 1,518 ft.

Superior Oil Co. No. 7 A. S. Billings, Sur. 113. T.D. 2,393 ft.; comp.; 20 B.P.H.

O'Hern—Webb County

Jameson & Byron No. 1 S. Benavides, Sur. 178. R.U.

Hamil & Smith No. 1 Bruni, 330 ft. N and W lines, Sur. 2,213. Sd. 2,915-35 ft.; swbg. in.

Magnolia Pet. Co. No. 4 J. Benavides, Blk. 321. Sd. 2,807-14 ft.; comp.; 11 B.P.H. on 3/16-in. choke.

Magnolia Pet. Co. No. 10 Seacord-Benavides, Hale Subd., Arispe grant. Drlg. 1,450 ft.

Magnolia Pet. Co. No. 7-B Benavides, Blk. 323. Sd. 2,795-2,807 ft.; comp.; 18 B.P.H. on 5/16-in. choke.

Magnolia Pet. Co. No. 30-B Servando-Benavides, Hale Subd., Arispe grant. Drlg. 200 ft.

Otis Phillips No. 1 Benavides, Blk. 250. Drlg. 1,022 ft.

T. S. Reid No. 1 Benavides, Blk. 319. Sd. 2,536-50 ft.; testing.

Texas Co. No. 14 Benavides, Blk. 424. Sd. 2,793-2,805 ft.; comp.; 8 B.P.H.

Texas Co. No. 15 Benavides, Blk. 424. Drlg. 1,500 ft.

Texia Oil Corp. No. 1 Benavides, Blk. 170. Drlg. 2,215 ft.

Escobas—Zapata County

B. W. Roscoe No. 4 Bustamante, Share 33. Drlg. 623 ft.

Locke Purnell No. 1 M. Garza heirs, 185 ft. NE line, 196 ft. NW line, Blk. 14, Zorro ranch. T.D. 1,617 ft.; D.&A.

Texas Co. No. 87 Whitehead, Cerrito Blanco grant. Drlg. 817 ft.

Haynes—Zapata County

Clover O. & G. Co. No. 11 Haynes, 1,000 ft. SW line, 1,450 ft. NW line, Blk. 7. Sd. 893-909 ft.; rng. tbg.

WEST TEXAS WILDCATS

Andrews County

Humble O. & R. Co. No. 1 J. M. Spinks, sec. 12, Blk. A-20. Drlg. 4,180 ft.

Brewster County

F. C. Dodson No. 1 Texas American Synd., sec. 66, Blk. 10, G.H.&S.A. Sur. T.D. 1,305 ft.; U.R. csg.

Cochran County

Cascade and Honolulu Oil Corp. No. 1 E. B. Duggan, cen. Labour 13, League 56, Oldham County School Land. Loc.

Concho County

Maverick Oil Co. No. 1 Jim Rice, sec. 18, I.N.R.R. Sur. T.D. 2,454 ft.; P.B. to 1,847 ft.; fshg.

W. C. Nelson et al No. 1 Rice, 1,980 ft. S and 660 ft. W, sec. 13, H.&T.C. Sur. R.U. spudder.

John W. Westbrook No. 1 Ledbetter, sec. 2, Sur. 1,673. S.G. 2,110 ft.; drlg. 2,565 ft.

Crane County

Big Basin Pet. Co. No. 1 Cowden, S.D. 2,602 ft.

Clark et al No. 1 A. P. Jordan, sec. 12, Blk. B-22, P.S.L. Sur. Machine.

Gulf Oil Corp. No. 2 W. N. Waddell, 1,-980 ft. from S and W, sec. 18, Blk. B-21. Bldg. rig.

Gulf O. Corp. No. 2 Tubbs, 440 ft. N and E. sec. 12, Blk. 27-B. Drk.

Humble O. & R. Co. No. 2 Tubbs, sec. 11, Blk. B-27. Loc.

Moore Bros. No. 1 Barnsley, sec. 43, Blk. 32, P.S.L. Sur. Drlg. 2,952 ft.

Rider et al No. 1 Thaxton, 200 ft. from NE and 2,570 ft. from SE, sec. 2, W. L. Wilkenson Sur. Spudded and S.D.

Sinclair Prairie Oil Co. et al No. 1 Tubbs, sec. 3, Blk. B-27. Drlg. 3,600 ft.

L. R. Stroud No. 1 Moseley. T.D. 518 ft.; to set csg.

Crockett County

John I. Moore No. 1 A. C. Hoover, sec. 4, Blk. FF, B.&B. Sur. T.D. 650 ft. U.R. csg.

Ector County

W. Dunning, Jr., No. 1 H. E. Cummins, sec. 33, Blk. 45, Twp. 1n, T.&P. Sur. Drlg. 2,675 ft.

Stanolind O. & G. Co. No. 1 J. E. Witcher, sec. 24, Blk. 43, Twp. 2s, T.&P. Sur. T.D. 4,230 ft.; P.B. 4,211 ft.

Edwards County

Paul Teas No. 1 J. H. Stewart, sec. 2, Blk. DA, G.C.&S.F. Sur. Drlg. 4,370 ft.

Fisher County

Forest Dev. Co. No. 1 A. M. Dry, 640 ft. from S and 2,000 ft. from E, sec. 198, Blk. 2, H.&T.C. Sur. S.D. 2,170 ft.

Gaines County

Landreth Prod. Co. No. 1 Kirk, sec. 22, A-21. Drlg. 512 ft.

W. T. Walsh et al No. 1 Averitt, sec. 238, Blk. G, W.T.R.R. Sur. Elev. 3,322 ft.; fishing 4,910 ft.; backed up 2,150 lbs. pressure; comp. here.

Glasscock County

Fleetborn Oil Corp. No. 1 F. C. Dodson, sec. 13, Blk. 34, Twp. 2s. Drlg. 2,435 ft.

Bruce Frazier No. 1 E. Patterson, 330 ft. N and E, sec. 188, Blk. 29, W. & N.W. Spudded and S.D.

Howard County

Southern Oil Co. No. 1 W.P. Edwards, sec. 32, Blk. 30, Twp. 1s, T.&P. Sur. Drlg. 836 ft.

D. C. Reed et al No. 1 Walter Pike, 660 ft. from S and E, sec. 24, Blk. 33, Twp. 1n, T.&P. Sur. M.I.M.

Hudspeth County

Haymon Krupp Oil & Land Co. No. 1 Thaxton, sec. 24, Blk. 74, Twp. 6, T.&P. Sur. T.D. 893 ft. Fsg.

Jeff Davis County

C. M. Joiner No. 1 Jones & Coffield, sec. 8, Blk. 3, H.&T.C. Sur. Drlg. 3,176 ft.

Jones County

Bob Elmore No. 1 Coton, sec. 10, D.D.&A. lands, 3 mi. W of Avoca. S.D. 2,050 ft.

Fain-McGaha Oil Corp. No. 1 Hayden, E. C. Martinez Sur. 195. Drlg. 1,767 ft.

Fondren Prod. Co. No. 1 Cox & Manley, F. Sieberman Sur. No. 8. Drlg. 1,383 ft.

Parker No. 1 C. L. Brown, sec. 9, Blk. 2, T.&N.O. Sur. T.D. 1,540 ft.; to set csg.

Kimble County

Dr. B. D. Thomas No. 1 Rust, sec. 47, B.S.&F. Sur., 12 mi. NW of Junction. Location.

Martin County

Woodley Pet. Co. No. 1 M. S. King, sec. 30, Blk. 35, Twp. 3s, T.&P. Sur. Drlg. 2,481 ft.

Menard County

Wilcox O. & G. Co. No. 1 Merchenson, sec. 158, E.L.R.R. Sur., Abst. 1,840, 8 miles S of Menard. Drlg. 1,815 ft.

Pecos County

S. Thompson No. 1 Elsinore Cattle Co., sec. 53, Blk. D, G.C.&S.F. Location.

Trans-Pecos Oil Co. No. 1 F. W. Popham sec. 235, Blk. 11, G.H.&S.A. Sur. T.D. 350 ft.; straight reaming.

Trans-Pecos Oil Co. No. 1 Gallaher, sec. 9, Blk. 51, T.&P. Sur. Spud and S.D.

Presidio County

Linderman Bros. Oil Corp. No. 1 J. R. Bledsoe & Badgley, sec. 15, Blk. 351, G.C.&S.F. R.R. Co. Sur., 2½ mil. NE of Presidio. T.D. 1,635 ft.; trying to loosen pipe.

Runnels County

Golden Pet. Co. No. 1 Giesecke, 14,462 ft. from N and 6,790 ft. from E, James Hughes Sur. Set pipe.

Schleicher County

Cardinal Oil Co. et al No. 1 J. A. Whitten, sec. 35, Blk. LL, T.C.R.R. Sur. U.R. at 1,370 ft.; drlg. 2,174 ft.

Magnus Oil Co. No. 1 Judkins & Spencer, C SW¼ sec. 4, Blk. V-28, Elev. 2,209 ft.; S.G. 4,350 ft.; drlg. 4,890 ft.

Scurry County

Bristow & Cantrill No. 1 Shannon, Est., sec. 331, Blk. 97, H.&T.C. Sur. S.D. 2,-960 ft.

Tom Green County

Spinner No. 1 Reed, 330 ft. S and W of Sub. 39, Mason & Perry Sur. Old T.D. 508 ft., now S.D., 1,710 ft.

Upton County

Greencliff Oil Corp. et al No. 1 J. H. Tippett. C NE¼ sec. 58, Blk. Y, T.C. Sur. S.D. 4,244 ft.

Ward County

Abell Brothers' No. 1 Lancaster Estate, sec. 61, Blk. 8, H.&G.N. Sur. in Pecos County, 5¼ miles down Pecos River from NW cor. of Pecos and E cor. of Reeves County. Drlg. 2,353 ft.

California Co. No. 1 L. Adams, sec. 39, Blk. 34, H.&T.C. Sur. T.D. 2,570 ft.; shot, est. good for 1,000 bbls. daily.

Gulf Oil Corp. No. 1 W. A. Estes, 330 ft. from NE and SE, sec. 38, Blk. 34, H.& T.C. Sur. Loc.

Lindsay & Bolin No. 1 Thomas, sec. 31, Blk. 34, H.&T.C. Sur. S.D. 2,520 ft.

Olsen & Anderson No. 1 Yell, W. F. Stewart Sur., sec. 6. T.D. 2,600 ft.; P.B. to 2,455 ft.; standardizing.

Richardson Oils, Inc., No. 1 Hathaway, sec. 37, Blk. 34, H.&T.C. Sur. Cellar.

Superior Oil Co. No. 1 J. H. Hughes, sec. 67, Blk. 34, H.&T.C. Sur. Drlg. 1,472 ft.

Winkler County

Bert Fields et al No. 1 Pure-Clapp, 330 ft. N and E, sec. 26, Blk. 26. Drlg. 212 ft.

R. H. Henderson No. 1 McCutchen, sec. 16, Blk. B-3, Illinois Oil Co. to drill.

R. H. Henderson et al No. 1 J. B. Walton, sec. 10, Blk. 26. T.D. 3,045 ft.; shot; drlg. out bridge.

R. H. Henderson et al No. 1 J. B. Walton, sec. 9, Blk. 26. T.D. 3,049 ft.; flowed 300 bbls. fluid per hour.

R. H. Henderson No. 2-B Walton, 330 ft. from N and W, sec. 10, Blk. 26. Drlg. 338 ft.

Herbert Oil Co. No. 1 L. Hendrick, 2,310 ft. from S and W, sec. 14, Blk. 26. Drlg. plug 2,549 ft.

Illinois Oil Co. No. 1 Central State Bank of Abilene, sec. 23, Blk. 26, P.S.L. Sur. Drlg. 2,817 ft.

Magnolia Pet. Co. No. 1 State-Walton, sec. 7, Blk. B-3. T.D. 3,695 ft.; P.B. 3,650 ft.; acidized.

Fred Hyer No. 1 Evans, sec. 8, Blk. 56. Drlg. 2,769 ft.

Joiner No. 1 Evans, sec. 46, Blk. 73, P.S.L. Sur. S.D. 3,128 ft.

Read & Duffey No. 1 Sealey, 330 ft. from N and W, sec. 8, Blk. A, G.M.M.B.&A. Sur. Loc.

Sun Oil Co. No. 1 Keystone, sec. 3, Blk. 77. Drlg. 4,916 ft.

Superior O. & G. Co. of Tulsa No. 1 M. J. Hill, sec. 18, Blk. B-11, P.S.L. Sur. S.D. 1,390 ft.; to lower csg.

Wahlenmaier and Atlantic Oil Prod. Co. No. 1-A Walton, sec. 34, Blk. 74. T.D. 2,883 ft. Fsg.

Yoakum County

C. J. Davidson et al No. 1 Bennett, sec. 678, John H. Gibson Sur. Elev. 3,557 ft.; T.D. 5,278 ft.; P.B. 5,264 ft.; shot; C.O.; flowed 230 bbls. in 24 hrs.; to run tubing to test.

Stogner et al No. 1 Roosevelt, 2,329 ft. from N and 330 ft. from E, sec. 315, Blk. D, John H. Gibson Sur. Material.

TEX. PANHANDLE WILDCATS

Cottle County

Alma Oil Co. No. 1 Yarbrough, sec. 644, Blk. H, W.&N.W. Sur. Show gas and oil 4,200-08 ft.; drlg. 5,240 ft.; sh. and lime shells.

Gray County

Joana Oil Corp. No. 1 Rendleman, 330 ft. from S and W lines of NE¼ of sec. 146, Blk. B-2, H.&B.N. Sur. R.U.R.

K. Kinsey No. 1 Stephens, sec. 187, Blk. N and 1,980 ft. from E. sec. 546, Blk. H, B-2, H.&G.N. Sur. T.D. 2,475 ft.; S.D.

Saulsbury Oil Co. No. 1 Husted, C W½ sec. 116, Blk. B-2, H.&G.N. Sur. Fishing 2,723 ft.

Hartley County

O. V. Beck et al No. 1-A Matador Ranch, sec. 20, Blk. 22, C.S.S. Sur. Pipe stuck 4,600 ft. and S.D.

Hutchinson County

Phillips Pet. Co. No. 1 Bryan, sec. 4, Blk. M-21, T.C. Ry. Sur. Drlg. 2,350 ft. sh.

Power Pet. Co. No. 1 Hodges, sec. 14, Blk. M-35, T.C. Sur. Top pay 3,060 ft.; shot; swabbed 120 bbls. oil and 20 bbls water in 12 hrs.

L. L. Travis et al No. 1 Hodges, sec. 14, Blk. X-02, H.O.&B. Sur. T.D. 2,905 ft.; lime; rng. csg.

Moore County

Shamrock O. & G. Co. No. 1 Ryan-Jones sec. 190, Blk. 3-T, T.&N.O. Sur. T.D. 3,331 ft.; tested 112,500,000 ft. gas; now R.U. to deepen.

Wheeler County

Allender & Heare No. 1 Harvey, sec. 67, Blk. 13, H.&G.N. Sur. T.D. 2,187 ft.; fsg.

Ben G. Barnett No. 1 Stewart, sec. 74, Blk. 13, H.&G.N. Sur. S.D. 2,136 ft.

Dumar O. & G. Co. No. 1 Slavik, sec. 100, Blk. 23, H.&G.N. Sur. Drlg. 1,932 ft.

Johnston et al No. 1 Rabo, sec. 105, Blk. 23, H.&G.N. Sur. Spudded and S.D.

Phillips Pet. Co. No. 1 Porter, sec. 35, Blk. A-8, H.&G.N. Sur. Drlg. 2,815 ft.; lime.

Smith Bros. No. 1 Woodward, sec. 23, Blk. 24, H.&G.N. Sur. S.D. 2,240 ft.

E. C. TEXAS WILDCATS

Bowie County

Woodley Pet. Co. No. 1 Lumpkin, S.D. 3,200 ft.

Cherokee County

Peveto et al No. 1 C. R. Kelley, 150 ft. out of NW cor. of Jose Pinedo Sur., 1 mi. N of Jacksonville. R.U.

Fannin County

L. P. Kean No. 1 Kelley, Wm. Kelley Sur., 3 mi. SW of Ladonia. S.D. 1,-380 ft.

Grayson County

Olson Drlg. Co. No. 1 Southwestern Life Ins. Co., J. C. Jamison Sur., 6 miles NW of Denison. Elev. 747 ft. Top Viola 4,-901 ft.; top Woodford 4,474 ft.; drlg. 4,-600 ft.

Freestone County

Clark & Cowden No. 1 M. Scott, Church Lot in Amalt Sur., 7 mi. N of Fairfield. S.D. 31 ft.

Grayson County

P. A. Shaver No. 1 Wm. Blair, 900 ft. from S of survey and 10 ft. from Cook-Grayson County line, R. H. Deavers Sur., 1½ mi. SW of Tioga. R.U.

Henderson County

McDougal et al No. 1 E. Price, 965 ft. S and 660 ft. E of most westerly W line, M. Mathews Sur., 4 mi. S of Trinidad. Drk.

Lamar County

J. Forrester et al No. 1 J. R. Woodward, L. Highton Sur., but in J. W. Woodward Sur., 1 mi. E of Mintel. Top Paluxy, 3,060 ft.; elev. 402 ft.; top anhydrite 3,735 ft.; drlg. 4,260 ft.

Limestone County

C. L. Lytle No. 1 J. L. Thompson, P. Varella Sur., Mexia field. Drlg. 6,600 ft.

Nacogdoches County

Overtex Oil Co. No. 1 Hazelwood, J. L. Ewing Sur., 18 mi. S of Nacogdoches. Drlg. 5,408 ft.

Red River County

Midwest and Texhomia Oil Co. No. 1 Hacker & Hughes, M.E.&P. Sur., 9 mi. NE of Talco. Drk.

Orr et al No. 1 Kurth Lbr. Co., 3,960 ft. from N and 600 ft. from W line of E. Smith Sur., center of county. Top Georgetown 600 ft.; drlg. 732 ft.

Williams et al No. 1 L. and O. Roberts, James Bankston Sur., 2 miles NE of Annona. Elev. 396 ft.; S.D. 725 ft.

Rusk County

McCallum et al No. 1 E. C. Gary, John Piburn Sur., 5 miles S of Henderson. Elev. 338 ft.; S.D. 2,440 ft.

Pure Oil Co. No. 1 W. H. Faulkner, Wm. Elliott Sur., 8 of Concord. Elev. 563 ft.;

drlg. 3,056 ft.; Pecan Gap 2,600-90 ft.; G.S. 2,601-09 ft.

J. W. Shipman et al No. 1 Citizens Natl. Bank, NE cor. of 135-ac. tract, J. J. Y'Barbo Sur., 4 miles NE of Henderson. S.D. 3,510 ft.

Titus County

Humble O. & R. Co. No. 1 M. B. Groves, Ben Jones Sur. Cut fault at 1,642 ft.; Top Woodbine 3,240 ft.; ran Schlumberger; no showing; S.D. 4,492 ft.

Humble O. & R. Co. No. 1 M. Galt, R. Winn Sur. 1½, S.E. Talco; elevation 946 ft.; Pecan Gap 1,658-1,755 ft.; drlg. 2,475 ft.

Humble O. & R. Co. No. 2 Groves, 990 ft. from S and C of E and W lines of lse., B. Jones Sur. Loc.

Jule Alford, tr., No. 1 W. D. Fry, I. P. Stern Sur., 1½ mi. S of Carr well. Elev. 319 ft.; drlg. 4,300 ft.

O'Neal, tr. No. 1 O. C. Lillianstern, C of 40 ac., Wm. Canon Sur., 4 mi. SE of Carr well. Elev. 302 ft.; top Georgetown 3,545 ft.; S.D. 4,349 ft.

EAST TEXAS

(Border Counties)

Cass County

American Liberty Oil Co. No. 1 Marcus Rembo, J. H. Reeves Sur. Drlg. 3,420 ft.

S. W. Norton No. 2 Mary Rives, John Collum Sur. Drlg. 4,653 ft.

Harrison County

R. C. Payne et al's No. 1 Lowery, H. D. Spain Sur. P.B. to 3,524 ft.

Marion County

M. S. Holman's No. 1 Henderson, R. Bennington Sur. P.B. to 2,443 ft.

Panola County

George Hudson et al's No. 1 J. F. Nail, McGeary Sur. Set 8-in. 40 ft.; fshg. for core bbl. at 2,345 ft.

Geo. Le Grand No. 1 P. J. Wardleigh, A. Thompson Sur. Set 10-in. 62 ft.

N. C. TEXAS WILDCATS

Archer County

L. T. Burns No. 1 Turbeville "K," sec. 151, R. Carbon Sur. A-84. Location.

Continental Oil Co. No. 7 C. . Zanecetti, sec. 9, S.P.R.R. Sur. A-417. Derrick.

C. Crosby No. 1 Ray, Blk. 150, Harris Sub. T.D. 600 ft.; S.D. for water.

Deep Oil Dev. Co. No. 11, Lease 4, L. P. Wilson, sec. 76, A.T.N.C. Lands. C.O. after shot; est. 120 bbls.; P.O.P.; C.O. and testing; est. 75 bbls.

J. D. Hardegree No. 1 Gus Symank, Blk. 11, Meade Sur., L.&M. Subdvn. Derrick.

Licker & Guffy No. 1 J. R. Parkey, sec. 1, S.P. Sur. A-423. Drlg. 1,755 ft.

Texas Co. No. 1 J. H. Turbeville "I," J. W. Cain Sur. A-69. Drlg. 1,700 ft.

Wilson-Ligon No. 1 M. B. Kolb, Blk. 116, Harris Subd. R.U. and S.D.

Baylor County

Consolidated Oil Co. No. 1 W. H. Portwood "Z," T.E.&L., sec. 1,573. Drlg. 1,045 ft.

K. R. March No. 1 W. B. Self, A. Hines A-156. Drlg. 450 ft.

Morris & Spoonts No. 1 D. K. Martin, sec. 212, T.&N.O. Sur. A-748. Drlg. 960 ft.; S.D.

Morris & Spoonts No. 1 J. M. Parker, B.B. B.&C. Sur., sec. 148, Blk. A. Spudded and S.D.

W. P. Morris et al No. 1 C. T. Porter, Edward Brown Sur. Sand with S.O. and gas 1,320-24 ft.; T.D. 1,333 ft.; fshg.

Cooke County

Anderson & Kerr No. 1 F. A. Bruthmeyer, H. Stroud Sur. A-930. Sd. 1,882-95 ft.; test wtr.; S.S.O. 2,010-15; 5-in. cmtd. 2,005; W.O.C.

Anderson & Kerr No. 1 C. A. Stelzer, T. B. Stroud Sur. No. A-950. Drlg. 2,000 ft.

Cain & Chandler No. 1 J. B. Burch, J. McWilliams Sur. A-658. R.U.R.

Hardin Oil Co. No. 1 J. G. Bonner, J. Lindheimer Sur. Drlg. 1,889 ft.

B. H. Hilburn No. 1 Hugan, A. Myers Sur. No. A-640. Location.

Lanier et al No. 1 Thetford, S.P.R.R. Sur. A-987. Drlg. 1,018 ft.

L. A. Long et al No. 1 Sarles, Hunt County School Lands Sur. A-440. Drlg. 2,245 ft.; S.S.O. 2,330-58 ft.; 5-in. 2,332 ft.; test water and show oil.

Hank Masterson No. 1 R. J. Timms, J. W. McPherson Sur. A-696. S.S.O. at 1,758-61 ft.; 6⅝-in. 1,756 ft.; drlg. plug.

N. Newburn No. 1 Dotson, Wm. Campbell Sur. A-238. S.D. 1,543 ft., drill pipe.

Petroleum Producers No. 1 J. W. Mount, J. C. Meeks Sur. A-758. Drlg. 1,275 ft. S.S.O. 1,540-45 ft.; est. 50 bbls.; testing.

H. F. Potts No. 1 S. D. Meador, B.B.B.&C. Sur. A-138. Drlg. 1,530 ft.

L. E. Rader No. 1 McCubbin, R. Wheelock Sur. A-1,684. Drlg. 1,213 ft.; sand 1,556-66 ft.; S.D. for 6-in. csg.; rmg. to set pipe.

W. F. Russell No. 1 Belle Payne, Marshall University Sur. A-620. Drlg. 320 ft.

J. M. Russell et al No. 1 B. B. Bawley, Blk. 24, John Barnett Sur. C.O.

Ruwaldt-Couch No. 1 Fleitman, L. Mikel Sur. A-747. Drlg. 1,551 ft.

Seitz, Comegys & Seitz No. 1 Field & Bowers, L. Raney Sur. A-878. Location.

Sunray Oil Co. et al No. 1-A A. C. McCall, W. H. White Sur. A-1,134. Drlg. 4,106 ft.

B. F. Thompson No. 1 F. Trubenback, P. Davidson Sur. A-337. Drlg. 618 ft.

Whitehead et al No. 1 W. Reed, F. Earthman Sur. A-349. Drlg. 580 ft.

Woodbine Oil Co. No. 1 Potter & Potter, J. Gorham Sur. S.D. at 900 ft.

Denton County

Jack Caudle et al No. 1 B. D. Jones, John Morton Sur. Spudded.

Oil Finance Corp. No. 1 J. S. Gambill, T. Burress Sur. Drlg. 1,042 ft.

C. S. Hoad No. 1 Travelers Insurance Co., Wm. A. Thompson Sur. A-1,238. Drlg. 455 ft.

Foard County

Humble O. & R. Co. No. 1 Burnett, sec. 16, Blk. X, S.P.R.R. Sur. Drlg. 3,150 ft.

Jack County

Bryson Oil & Gas Co. No. 1 G. E. Evett, Geo. Hardesty Sur. A-294. Drlg. 3,312 ft.

Clark et al No. 1 L. S. Wright, Z. S. Brooks Sur. A-64. O.S. 756-70; testing.

J. W. Cole et al No. 1 Mrs. D. C. Clayton, Lewis Knight Sur. A-324. R.U.R.

S. B. Edwards No. 1 Bryson, J. Hughson Sur. A-256. R.U.R.

Engineers Oil Co. No. 1 Cooke, J. Young Sur. Drlg. 1,200 ft.

W. H. Hammon No. 1 G. E. Evett, H. Plaster Sur. Loc.; spud.

W. H. Hammon et al No. 1 F. H. Rhodes, R. N. Erwin Sur. A-1,378. Loc.

Harper Pet. Corp. No. 1 Van Hooser, J. W. Morrow Sur. A-1,926. Drlg. 800 ft.

C. Kadane No. 1 E. F. Smith, S.P.R.R. Sur. A-552. Drlg. 800 ft.

E. C. Lawson et al No. 1 Patterson, Lewis Knight Sur. A-324. 2,950-64 B.S.S.O.; drlg. 3,038 ft.

Nelson Oil Synd. No. 1 J. P. McCoy, A. S. Ensworth Sur. Testing at 2,961-80 ft.; est. 40 bbls.; fishing liner.

Ray & Staniforth No. 1 L. J. Hestor, J. Ash Sur. A-8. Drlg. 1,825 ft.; P.B. to 1,000 ft.; crooked hole; lost hole; skidding 30 ft. west.

Montague County

A. Gutowsky et al No. 1 J. E. Lemmon Blk. 13, C. K. Hamm Sur. A-322. Drlg. 1,140 ft.

E. T. Hart No. 1 W. L. Davis, sec. 12, Jack Co. School Lds. Drlg.

J. F. Hart No. 1 W. M. Talley, J. Perrin Sur. T.D. 1,740 ft.; fsg.

L. C. Heydrick No. 1 J. B. Lawrence, M. Burnside Sur. A-14. R.U.R.

Jim Seeds et al No. 1 Coombs, sec. 58, M.E.P.&P. Sur. S.D. 1,310 ft.

J. M. Holmes No. 1 H. D. Field, sec. 55, M.E.P.&P. Sur. A-528. S.D.

Throckmorton County

Ben Ashe et al No. 1 W. B. Parrott, sec. 961, T.E.&L. Sur. Loc.

Wichita County

Fisher & Moore No. 1 Gibson, sec. 302. Sand 1,834-60 ft.; C.O. 1,935 ft.

Tom Medders No. 1 Fassett, sec. 1 E.T. A-76. Drlg. 1,400 ft.

Reno Oil Co. No. 1 W. T. Waggoner-D, sec. 1, S.&M. Sur. A-393. Drlg. 640 ft.

Wilbarger County

Franklin Oil Co. No. 1 D. G. Feller et al, sec. 108, Blk. 14, H.&T.C. Sur. S.D. 1,570 ft.

Lane & Simons No. 1 Allison, sec. 43, H. &T.C. Sur., Blk. 12. R.U.R.

Pois & Schultz No. 1 W. T. Waggoner, sec. 103, H.&T.C., Blk. 14. Spudding.

Ed S. Smith et al No. 1 W. T. Waggoner, sec. 50, Blk. 14, H.&T.C. Sur. Sd. 1,850-52 ft.; drlg. 1,875 ft.

Smith No. 1 S. A. Dill et al, sec. 32, Blk 14, H.&T.C. Sur. S.D. 2,090 ft.

Wheeler et al No. 1 W. T. Waggoner, sec. 99, H.&T.C. Sur., Blk. 14. Drlg. 1,755 ft.

Young County

L. T. Burns No. 1 C. E. Braune, T.E.&L. Sur. 188. Location.

L. T. Burns No. 1 Logan, sec. 70, T.E.&L. Sur. Location.

Christie Bros. No. 1 Primitive Baptist Church, S. L. Hill Sur. A-126. Drlg. 4,240 ft.

C. C. Counts No. 1 W. E. Edwards, T.E.& L. Sur. 71. Drlg. 400 ft.

Curtis & Bracken No. 1 Allar Co., H. Garmes Sur. A-104. Drlg. 4,208 ft.

Dobbs Oil Co. and McLester No. 1 Laquey, J. Busse Sur. A-1,570. Drlg. 3,780 ft.

Nash & Windfohr No. 1 W. S. Simms, D. Franklin Sur. A-1,425. Drlg. 2,815 ft.

C. D. Neff et al No. 1 W. A. Dennis, C. F. Bass Sur. Drlg. 1,965 ft.

Pitzer & West No. 1 Harrell, J. Daily Sur. A-78. Drlg. 675 ft.

Pitzer & West No. 1 S. L. Thornton, sec. 1,015, T.E.&L. Sur. A-824. Drlg. 3,425 ft.

Rathke Oil Co. No. 2 J. T. Rogers, S. H. Graham Sur. A-124. Drlg. 3,340 ft.

A. T. Strong No. 1 Manley. Drlg. 2,490 ft.

Steel Coordination

NEW YORK, Apr. 13.—Another step in coordinating the manufacturing activities of United States Steel Corp. was taken when announcement was made properties and activities of American Sheet & Tin Plate Co. would be merged as an integral part of the Carnegie-Illinois Steel Corp., of which Benjamin F. Fairless is president. The announcement said:

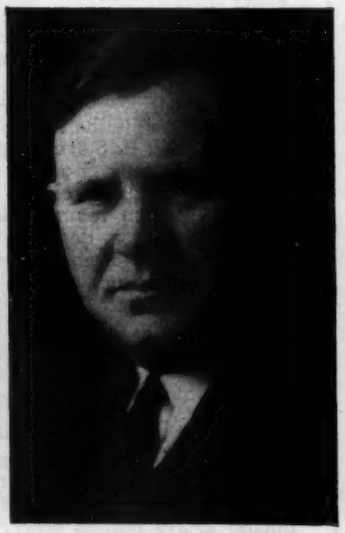
"In continuation of the policy of more closely coordinating the activities of the subsidiary companies, the corporation has approved the unification of the properties and operations of the American Sheet & Tin Plate Co. with the Carnegie-Illinois Steel Corp."

Harry Gilpatrick, Kansas City, Mo.; A. O. Dillenbeck, New York City; Howard Babcock, Buffalo, N. Y.; Frank Hagenberg, Chicago, Ill., and Mr. Van Horn, Williamsburg, Pa., were in Tulsa attending the annual directors meeting of the H. F. Wilcox Oil & Gas Co.

R. H. BARTLETT IS NEW CHAIRMAN OF UNION WIRE ROPE CORP. BOARD

R. H. BARTLETT

M. K. ENSINGER



H. R. GRUBER

J. H. HATCH

Directors of the Union Wire Rope Corp., at their recent annual meeting, created the position of chairman of the board, and R. H. Bartlett, Tulsa, president of the corporation since its organization, was advanced to it. M. G. Ensinger, Kansas City, Mo., formerly vice president and general manager, was chosen president and general manager. Mr. Bartlett is president of the Bartlett Oil Corp., and director of the Fourth National Bank of Tulsa. Other officers elected were: H. R. Gruber, Tulsa, vice president and sales manager; J. H. Hatch, Kansas City, secretary and treasurer; J. C. Soll, Kansas City, assistant secretary and treasurer; H. M. Lawrence, Tulsa, assistant secretary and treasurer.

Directors chosen follow: R. H. Bartlett, M. G. Ensinger, H. R. Gruber, Frank L. Moore, Tulsa independent oil operator and director Mid-Continent Petroleum Corp.; H. O. McClure, Tulsa, president Fourth National Bank of Tulsa; E. A. Reedy, Kansas City, vice president, Schermerhorn Brothers Co.; Phil D. Morelock, of Shouse, Morelock & Shrador, attorneys and tax counselors of Kansas City, Tulsa and Washington, D. C.

PERSONAL

WERNER MULLER, chief engineer, Alfred Wirth & Company, Erkelenz, Germany, is arriving on the S. S. "Europa" from Berlin on April 19 to attend the seventh Oil Equipment and Engineering Exposition at Houston, Texas, April 20 to 25. Mr. Muller's firm is engaged in importing and selling American drilling and production equipment in Germany and other European fields in addition to manufacturing own oil tool equipment. This firm is one of the oldest and largest concerns in the European oil equipment industry.

H. BRITTON THOMSON, formerly with Pure Oil Company, in the Michigan district, resigned to take a position with Baker-Perkins Company, Saginaw, Mich., as industrial heating engineer.

J. W. SELBY, chief scout for the Shell Petroleum Corporation, at Houston, Tex., returned from a business trip through the Southwest Texas district.

A. R. McGRATH, Mid-Continent Petroleum Corporation, was stricken with appendicitis while in Kansas City, Mo., on a business trip. He was operated on in St. Joseph's hospital and is reported convalescing.

BRUCE CLAYTON CLARDY resigned his position as manager of the crude oil department for Shell Petroleum Corporation, effective April 15, and will assume management of the new partnership of Heyser, Heard & Clardy with Houston his headquarters.

OSCAR C. NONWEILER, division petroleum engineer of the southern division of Carter Oil Company; GEORGE E. WAGONER, chief computer, and a seismograph party of 10 persons headed by ROBERT S. DAHLBERG, have been transferred to the staff of the Standard Oil Company of Louisiana.

D. L. DEL'HOMME, engineer with the Reed Roller Bit Company, has been transferred to the Rocky Mountain district. He was formerly engineer in the West Texas and New Mexico district with headquarters at Midland, Tex. He has been with the company for 10 years and started with it in the California fields.

MITSUJI ODA, manager and director of the Asano Bussan Company, Ltd., has left for Tokio after a visit of several months in the United States, during which he made a survey of the petroleum situation in connection with Japan's increasing requirements for oil and oil field and refinery equipment. The Asano Bussan Company represents Sinclair Refining Company in Japan.

R. L. PATTISON, of the Central Pipe Line Company, Chatham, Ontario, is spending a few weeks in St. Petersburg, Fla.

S. MYRON ZANDMER, president of the Terminal Oil Company, of Los Angeles, Calif., has returned to Lethbridge, Alberta, after a trip to Seattle and Spokane, Wash.

HENRY DUNDAS, vice president of Socony-Vacuum Oil Company, and F. W. HAIG, the company's chief aviation officer at Melbourne, Australia, left Los Angeles, Calif., several days ago on the S. S. Mariposa bound for Honolulu and the Antipodes.

H. LEIGHTON SMITH, of the Texas Company of California, recently purchased a five-place cabin monoplane. He can now fly to Kettleman Hills in two hours, work there four hours, return in two hours, a total of eight hours. It is usually a 12-hour trip by automobile from Los Angeles to Kettleman Hills.

C. B. SINGLETON, general purchasing agent, Shell Petroleum Corporation, was a recent business visitor at the Shell offices in Tulsa.

L. B. BERRY, formerly scouting the West Central Texas district, with headquarters at Abilene, Tex., is being transferred to Midland, Tex., by the Shell Petroleum Corporation.

JONH McGINN, pioneer member of the Manley & McGinn Oil Company with holdings in the Midway-Sunset field of Kern County, California, left recently for Fairbanks, Alaska, to which point he goes each year to supervise work on his mine in that area.

RYCROFT MOSS, geologist with the Phillips Petroleum Company, has been transferred from the Wichita, Kans., office of that company to San Antonio, Tex. Mr. Moss, a former professor of geology at the University of Kansas, was also a member of the Kansas Geological Survey.

L. N. McCORD, formerly in the geophysical department of the Phillips Petroleum Company at Bartlesville, Okla., has been transferred to the scouting department and moved to Breckenridge, Tex. A. C. HORNADAY, in the geological department for the company, has been transferred from Midland, Tex., to Breckenridge.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

The government in Washington is trying to suppress get-rich-quick oil promotions, but promoters continue to clean up gullible investors throughout the country.

Newspaper correspondents have been sending reports that the new Osage pool was declining rapidly. "There is no truth to these statements, which are made up from hotel gossip and jealous knocks."

"Fighting Bob" Evans and New York capitalists are at the head of a $10,000,000 company trying its luck in California. There are many other similar ventures in that state.

20 YEARS AGO

"Motorzine" is the newest gasoline substitute, which its discoverer, W. H. Stevens, of St. Louis, says can be manufactured at 5 cents a gallon, and will give greater automobile mileage than gasoline.

C. E. Rathbun, returning from a trip into the oil fields to his office in Tulsa, declares Oklahoma has a big problem in its roads, now almost impassable because of deep, sticky mud. "This is a rich state and it should have good roads."

A dispatch from Wichita Falls, Tex., reports excitement over completion of a well in a new sand 3 miles northwest of production at Strawn. The well, 1,100 feet deep, drilled by the Texas Pacific Coal & Oil Company on its Stuart lease, is rated at 250 barrels daily.

10 YEARS AGO

Sinclair Oil & Gas Company's No. 27 Hartley, in the Garber pool, Oklahoma, is the industry's greatest well in point of marketable products obtainable from it. It is producing 20,219 barrels daily. The gasoline from 10 days' output would run 12,000 automobiles for a year. Other derivatives noteworthy.

George S. Davison, Pittsburgh, Pa., president of the Gulf Refining Company, tells a meeting of engineers in Tulsa that the petroleum engineer now is well established and no longer looked upon as "all style and no action."

O. H. Williams, organizer of the Mutual Oil Company, which was later taken over by the Continental Oil Company, dies suddenly in Kansas City, Mo.

AL BUCHANAN, prominent drilling contractor in Southwest Texas, left San Antonio recently for a vacation trip to California.

R. G. HOLLAND, formerly with the Standard Oil Company of Venezuela, has joined the staff of the Carter Oil Company at Tulsa as petroleum engineer for the central division.

J. L. EASLEY, president of Superior Oil Corporation, is on a two weeks business trip in the eastern states. He planned to attend the company's annual stockholders meeting in Wilmington, Del.

R. G. PHELPS, vice president of the Meenan Oil Company, New York City fuel oil marketing organization, has left on a trip which will take him through some of the leading oil fields of the Mid-Continent and California.

C. W. ATKINS left San Antonio, Tex., recently for a two months' vacation trip to Honolulu, accompanied by MRS. ATKINS. Mr. Atkins is associated with J. T. O'NEIL in the Santa Clara Oil Company, operators in Southwest Texas fields.

T. A. MORGAN, director of the conservation division of the Kansas Corporation Commission, was a business visitor in Tulsa last week. He was seeking information regarding the amount of Kansas oil for which buyers will make nominations in May.

CHARLES L. MAGUIRE, president of the Roosevelt Oil Company and Simrall Pipe Line Company, Mount Pleasant, Mich., and a former refinery operator in Muskegon, was married Thursday in South Bend, Ind., to his secretary, MISS SYLVIA FASQUELLE. Mr. MaGuire was head of the former Michigan Central Refining Company.

PARAGRAPHS

ARTHUR F. EADIE, graduate of University of California, Berkeley, Calif., is now with Standard Oil Company of California in the Avenal, Calif., district.

R. C. STAMETS, of Dallas, Tex., manager of tubular sales division for Oil Well Supply Company, was a recent business visitor at the company's Tulsa offices.

CARL WALTER, formerly of Denver, succeeds J. C. JULIAN as the Continental Oil Company's scout in the Kansas district. Mr. Julian has been transferred to the land and leasing department.

LON HUDDLESTON, formerly in the production department for the Shell Petroleum Corporation at Eastland, Tex., has been transferred to the scouting section at Houston, Tex. T. J. WRIGHT, formerly in the drafting department, has also been transferred to the scouting section at Laredo, Tex.

JOCK GARDEN, oil producer, has been confined to a hospital in Hutchinson, Kans., where he was treated for burns on his face and hands received when fire destroyed a rig in southeastern Rice County, Kansas, recently. MRS. ROBERT GARDEN, L. E. DOUGLASS, who drilled the well, MRS. DOUGLASS, and DON RYDER, member of the drilling crew, received minor burns.

LONNIE HUDDLESTON, formerly in the engineering department of the Shell Petroleum Corporation at Houston, Tex., has been transferred to the scouting department and to Cisco, Tex., where he will scout the West Central Texas district.

FERRIS HEFFINGTON, scouting for Magnolia Petroleum Company at San Antonio, Tex., has been promoted to land man and transferred to Mount Pleasant, Tex. K. V. FRITTS has been transferred from Perry, Okla., to San Antonio, to scout that district in place of Mr. Heffington.

W. N. O'ROARK, scout for Standard Oil Company of Louisiana, was elected president of the Shreveport Oil Scouts Association at a recent organization meeting, attended by approximately 40 scouts, representing all major oil companies. W. BRANTLEY JACKSON, of the Magnolia Petroleum Company, was elected vice president and OVIDE J. ROBICHEAUX, of the Arkansas Natural Gas Corporation, was named secretary-treasurer.

FRANK H. DUNN was elected a director and executive vice president of the H. F. Wilcox Oil & Gas Company at the annual meeting in Tulsa last week. He succeeds GEORGE A. DYE, one of the organizers of the company who resigned to engage in private oil business. Mr. Dunn previously was vice president in charge of refineries and purchasing. Other new directors are J. C. CLOVER, superintendent of production; ALVIN CHAPMAN, head of the land department; HAROLD B. WARD, purchasing agent; CARL L. MILLER, secretary and assistant treasurer, all of Tulsa. HOMER F. WILCOX was reelected president of the company.

THOMAS H. WORK has been elected president of the Nordon Corporation succeeding GLEN M. RUBY, who recently resigned.

J. H. McLEOD, of Calgary, Alberta, western production manager of Imperial Oil, Ltd., visited Toronto recently on business.

BERT S. RIDGEWAY, assistant district geologist for Empire Oil & Refining Company in Kansas, has been transferred to Michigan.

C. A. MELTABARGER, district manager of Texas Company of Canada, Ltd., addressed the Cosmopolitan Club luncheon at Calgary, Alberta, on "Oil Refining."

DR. H. C. HORWOOD, of Kingston, Ontario, has resigned as assistant geologist of the Geological Survey of Canada to accept an appointment as geologist with the Ontario Department of Mines at Toronto.

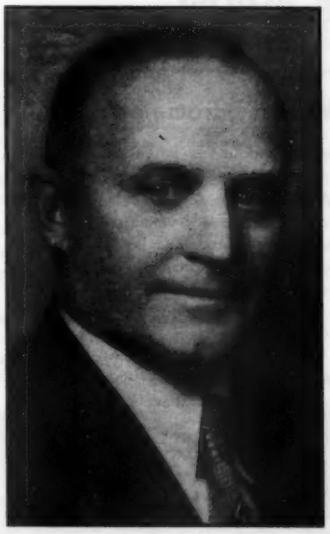
H. G. McLEAN, Tulsa, comptroller and credit manager for Empire Oil & Refining Company, left the past week on a six weeks' vacation trip. He will visit in New York, the Canal Zone, Central American countries and California.

C. E. BUSCHOW, of Pasadena, Calif., was elected director of the Bridgeport Machine Company at the annual meeting in Wichita, Kans. He succeeds O. C. BUSCHOW, Mena, Ark., who recently was killed in an automobile accident. A. A. BUSCHOW, Wichita, was re-elected president, and other directors were re-elected.

HENRY PHILLIPS, president, Sinclair Prairie Oil & Gas Company, Tulsa; J. R. MANION, president, Sinclair Prairie Pipe Line Company, Independence, Kans., and C. E. CRAWLEY, manager of production, pipe line and crude oil purchasing divisions of the Consolidated Oil Corporation, attended a conference of company officials in Fort Worth, Tex., last week.

Union's Shipping Boss

As director of transportation for the Union Oil Company of California William Groundwater is responsible for all pipe lines and storages, steamships, marine equipment and rail shipments. He is a director of the Pacific American Steamship Association and of the Los Angeles Steamship Association, besides being a member of the Marine Service Bureau executive committee, the American committee of Lloyd's Register of Shipping and the American Society of Mechanical Engineers.



WM. GROUNDWATER

Born on one of the Orkney Islands, Mr. Groundwater at the age of 20 came to the United States 25 years ago. Soon afterward he journeyed to the Pacific Coast and got a job as helper on the construction of a pipe line for Union Oil in the San Joaquin Valley. He has been with the company ever since.

In 1911 and 1912 Mr. Groundwater was employed as engineer of the Creston pump station. Then he was transferred to the pipe line headquarters of the company in San Luis Obispo and placed in charge of mechanical equipment and personnel. In 1913 Mr. Groundwater was made superintendent of both the pipe line of the Producers Transportation Company, a Union subsidiary, and of the newly acquired Lompoc pipe line. He was promoted in 1922 to assistant manager of transportation and a year later became head of the department. He was elevated to his present post in February, 1931.

THOMAS E. WARD, of the Oilfield Equipment Co., has returned from a business trip to Trinidad.

A. B. SLOAN, vice president of the Sinclair Prairie Pipe Line Company at Fort Worth, Tex., spent several days in the company's offices at Houston, Tex., the past week.

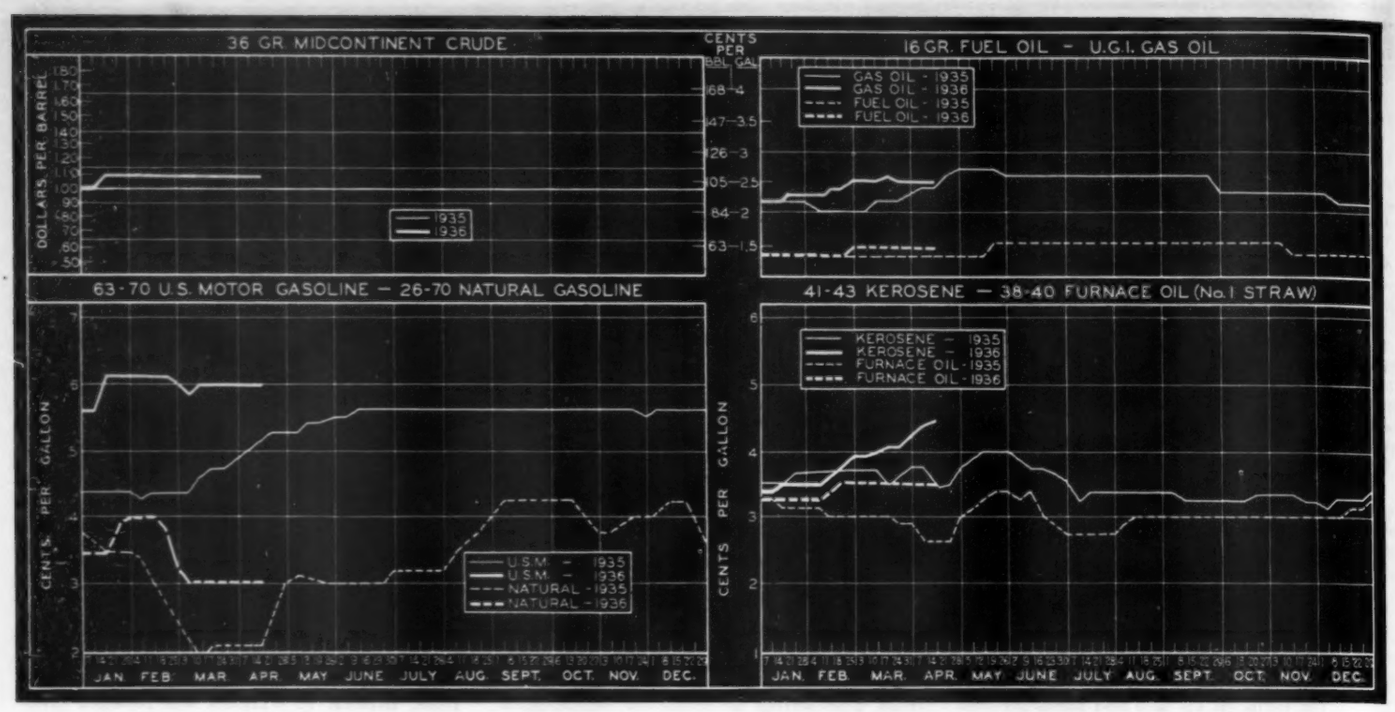
RALPH STEINMAN, chief scout for the Sinclair Prairie Oil Company at Tulsa, was a business visitor to the company's offices at Houston, Tex., last week.

CLARENCE WIGHTMAN, assistant chief counsel for the Texas Pacific Coal & Oil Company, Fort Worth, Tex., was stricken by a heart attack and is confined to a local hospital.

DR. C. D. LOWRY, JR., of Universal Oil Products Company, addressed the Ann Arbor, Mich., section of the American Chemical Society on April 7. His subject was, "Modern Motor Fuels and Lubricants."

FREDERICK G. CLAPP, consulting geologist, New York, has returned home after a three weeks' trip in Louisiana ending in March and will shortly leave again on another brief trip of about the same duration in the Middle West.

ARTHUR T. DOREMUS, assistant secretary of the Socony-Vacuum Oil Company, Inc., has retired after 40 years' service, 25 years as an officer. He entered the employ of the old Standard Oil Company in 1896 and 1911 was elected assistant secretary of the Standard Oil Company of New York. From 1911 until 1923 he served also as head of the company's stock transfer department. With the merger of the Standard Oil Company of New York and the Vacuum Oil Company in 1931, he became assistant secretary of the present company.


36 GR. MIDCONTINENT CRUDE
DOLLARS PER BARREL
CENTS PER BBL. GAL.
1935
1936
16 GR. FUEL OIL - U.G.I. GAS OIL
GAS OIL - 1935
GAS OIL - 1936
FUEL OIL - 1935
FUEL OIL - 1936
63-70 U.S. MOTOR GASOLINE — 26-70 NATURAL GASOLINE
CENTS PER GALLON
U.S.M. - 1935
U.S.M. - 1936
NATURAL - 1935
NATURAL - 1936
41-43 KEROSENE — 38-40 FURNACE OIL (No. 1 STRAW)
KEROSENE - 1935
KEROSENE - 1936
FURNACE OIL - 1935
FURNACE OIL - 1936
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.

Group 3 Tankcar Motor Fuel Market

Steady, But Retail Prices Are Soft

By T. F. SMILEY

Although tankcar prices of gasoline in the Group 3 area seemed satisfactorily firm this week, evidences of weakness in the retail market were not hard to find. In the Oklahoma City district the Magnolia Petroleum Co., recognized as the pacemaker, recently slashed 2 cents off both tank-wagon and service-station prices. The posted prices in the Tulsa district were not changed, but reports were current this week that certain dealers handling the products of major refiners were giving secret rebates. If jobbers and refiners refuse to absorb the reported rebates this situation, it was pointed out, would soon correct itself. In the meantime there will be uneasiness.

Rise Delayed in Starting

The seasonal rise in consumption, which has not yet got really under way, should prove to be the tonic needed to put the wholesale and retail gasoline market in a fairly healthy state. Adverse weather conditions have continued to exert a depressing influence, dust storms and floods following closely on the heels of blizzards. Notwithstanding discouragements, the feeling in the trade was cheerful this week. One comment was: "I expect a good market to develop very soon. Everything that could happen to us has happened. The law of averages should operate in our favor from now on."

Some refiners and marketers selling a gasoline with an octane rating between 50 and 60 had hoped the Western Petroleum Refiners Association convention last week would fix a minimum for third-grade gasoline because they saw danger of their business being injured by material of much lower octane from certain other areas. However, the association did approve tentative gasoline specifications which are expected to tend toward keeping low-quality motor fuels out of competition. Maximum gum and sulfur content and maximum vapor pressure were fixed in these specifications.

Action of the convention in splitting the middle grade into two brackets is regarded as a step forward in protecting the public from inferior products. Rough estimates indicate that 70 per cent of the total quantity of gasoline consumed is regular house-brand material, 17 per cent third-grade and 3 per cent premium-grade. This leaves some 10 per cent, with an octane rating ranging probably from 63 to 67, which under the old system of identification could be sold in competition with either third-grade or house-brand material. The new octane setup, recommended to be effective April 15 in spot business and not later than October 15 in the contract market, creates three brackets. The lowest covers 62 octane and below; the next, 63 to 67 octane, and the highest, 68 to 70 octane. The last-named bracket is the regular.

Refined Oil Market Barometer

Pronounced rise in demand and a brake on runs to stills are the imperative need of the gasoline division. Although consumption is higher in some districts than last year, huge inventories resulting from abnormal weather must be liquidated to restore a healthy market. Improved conditions on the West Coast should have energizing effect on other areas. Sentiment is cheerful.

MID-CONTINENT. Gasoline and naturals dull. Heating oils holding. Wax weaker.

EAST COAST. Gasoline unsettled. Seasonal lag in furnace oil, gas oil and industrial fuels.

GULF COAST. Gasoline and kerosene firm. Burning oils steady. Prices unchanged.

PENNSYLVANIA. Bright stocks up. Kerosene and fuel oil showing softness.

CALIFORNIA. Market generally firm. Easter holiday trade good. Better prices indicated.

CHICAGO. Gasoline demand rising. Kerosene and tractor distillates active.

Naturals Holding Their Own

Natural gasoline was holding its own and apparently doing it pretty well in view of conditions in the refinery gasoline division. Prices continued unchanged, but were reported to exhibit no weakening tendency. Large quantities are moving to storage, but most of this is for actual commitments next fall, when manufacturers believe every gallon is likely to be wanted. One feature of the natural gasoline situation which is not encouraging is the fact that a substantial quantity of material which was stored last spring for expected use in the fall and winter had to be carried over to 1936, refiners having been slow to buy at the price levels which obtained. In spite of this, confidence was expressed that the naturals would experience little if any further sagging.

In the face of the fact that the peak demand for furnace oil for heating purposes has past for this year, the movement of this material has not diminished as much as naturally would be expected. One explanation offered is that the higher gravity distillates are being purchased extensively for use as tractor fuels. Doubtless, however, the prolonged wintry weather in many northern areas is an important factor. Kerosene and tractor fuels were more vigorous.

The lubricant market has not yet struck its stride, but the bright stocks were reported in good position. Wax, which has been extremely strong for weeks, with buyers reporting difficulty on finding supplies, was showing signs of weakness.

Unfavorable Factors in Eastern Area Are Causing Some Unsettlement

NEW YORK, April 13.—Although the gasoline price structure has held fairly well throughout the east during the past week, increasing signs of unsettlement in the retail structure have become evident in several widely separated localities, particularly in northern New York state, portions of the metropolitan New York area and in Southern New Jersey. The sentiment on the part of leading marketers is on the side of caution, the trade emphasizing that without exaggerating the importance of local situations, basic conditions are not as favorable as it had been hoped they would be at this time.

The unfavorable factors are now a matter of general knowledge to the industry, having been enumerated and broadcast generally by the American Petroleum Institute's Committee on Supply and Demand; they include the unusually severe winter, floods and excess refinery production and stocks. Eastern marketers express the opinion that with an adequate appreciation of the dangers inherent in the situation, a general price cut can be averted.

Confidence in the immediate outlook for the motor fuel market has been further lessened by distinctly unfavorable weather throughout the east during the past week, with prospects also for a bad week-end.

Nevertheless, marketers believe that they have nothing to complain about as to the demand for gasoline, in as much as it is said to be running substantially above that of a year ago. The chief difficulty lies in the fact that the sales departments of the oil companies are actually dependent upon a more than average increase in consumption in order to balance the heavy production schedules of the refining branch of the industry. Nor do they place the entire responsibility on the refiners, as the latter have had to overproduce gasoline in order to meet the demand for fuel oils during the past winter.

Statistics recently at hand clearly indicate the connection between fuel oil and the position of the gasoline market. The domestic consumption of gas and fuel oil during the first two months of this year showed an increase of 17.6 per cent over the same period of 1935, while stocks on hand declined 4.1 per cent.

Refiners, increasing their runs in order to meet this large gain in fuel oil consumption, could not avoid a corresponding gain in gasoline production, with the result that despite an increase of 9.8 per cent in motor fuel demand, stocks on hand have increased 8.8 per cent over a year ago to a new high record.

In emphasizing these figures, which are generally available to the trade, eastern refiners point out that the sales end of the motor fuel business is in far better shape inherently than a year ago. There has been a substantial decrease in hot oil and cut-price gasoline production, and if marketers can hold in some restraint their traditional fight for gallonage and give the forthcoming seasonal increase in motor fuel consumption a chance to assert itself, there is no reason why a firm market should not continue to prevail.

Experienced oil men point out that the refining branch of the industry has been repeatedly faced with difficulties such as those which now exist, and which are due principally to the constant change in conditions affecting the demand for the principal products of petroleum, dating back to the time gasoline developed from a waste product to the industry's chief revenue-producer. Following this came the vast improvement in manufacturing methods by which refiners increased the percentage yield of gasoline from crude. The situation which followed is somewhat similar to the present one; excess gasoline production and a shortage of fuel oil, but it was met by increased production of crude oil, and especially heavy crude oil from foreign fields.

Then came the restriction on oil imports and import taxes on crude oil and fuel oil. Eastern refiners have attempted to ease the present situation by importing crude and fuel oil in bond for supplying bunker oil for vessels engaged in foreign trade and for re-export, and at the same time keeping their refinery production schedules as low as possible. But this has been inadequate.

One way of meeting the present situation would be to allow increased imports of heavy crude oil, which is plentiful in South America, and to reduce or eliminate import taxes on heavy crude and fuel oil. But this is something which is not likely to be accomplished overnight, although it is understood the situation has been discussed recently in Washington.

Meanwhile there is the possibility that the present situation may be solved by the anticipated heavy seasonal consumption of gasoline, in the event that it is sufficient to adequately reduce the heavy inventories which now exist. Between now and June 1 will undoubtedly prove a critical period for the gasoline market.

The only change to be recorded in the fuel oil market during the past week was a one-quarter cent cut in No. 4 furnace oil to 4 cents per gallon, f.o.b. refinery, although retail furnace oil prices have been reduced one-quarter cent on all grades to conform with refinery price reductions announced a week ago.

Gas oil of 27 gravity plus was also reduced one-quarter of a cent to 4½ cents per gallon, f.o.b. refinery, at Bayonne.

The diesel oil market continues firm, due largely to continued heavy domestic consumption. There has been some easing in the marine demand, although not of important significance.

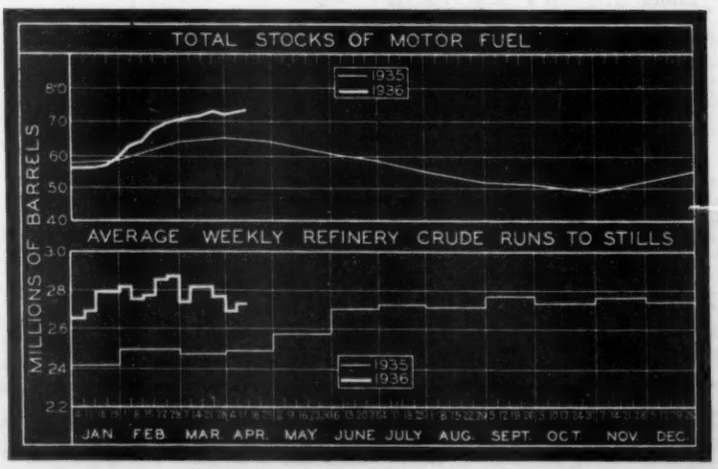
Price cuts recently announced in furnace oil, industrial fuel oil and gas oil are considered largely of seasonal nature, and do not indicate any basic weakening in the strong situation which has existed in these oils for some time past.

A. P. I. Weekly Refinery Statistics

Week Ending April 11, 1936

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	426,000	20,042,000	6,438,000
Appalachian	94.8	102,000	2,854,000	517,000
Indiana, Illinois, Kentucky	95.9	390,000	11,697,000	2,850,000
Oklahoma, Kansas, Missouri	84.8	265,000	7,705,000	2,432,000
Inland Texas	48.5	108,000	1,733,000	1,493,000
Texas Gulf	96.8	587,000	8,603,000	6,744,000
Louisiana Gulf	96.4	124,000	1,904,000	2,080,000
North Louisiana and Arkansas	90.0	35,000	391,000	294,000
Rocky Mountains	61.9	47,000	1,679,000	728,000
California	92.6	478,000	12,920,000	71,025,000
Total reported	89.6	2,562,000	69,528,000	94,601,000
Estimated unreported	.....	193,000	4,126,000	1,907,000
*Estimated total	.....	2,755,000	73,654,000	96,508,000
*Estimated total previous week	.....	2,690,000	73,310,000	95,954,000
†April 30, 1935	.....	2,502,000	64,393,000	97,727,000

*Bureau of Mines basis currently estimated. †Monthly report, U. S. Bureau of Mines.



The Export Outlook

The revival of oil sanctions talk in Europe has dominated the oil export outlook, and has imparted a somewhat hesitant tone to an already uncertain market for export gasoline on the Gulf Coast. Normal conditions in the Gulf export market cannot be looked for until existing uncertainties have been removed. As it is, the market has been reduced to a subnormal volume by European developments.

The financial significance of events abroad cannot be overlooked. While French currency has overcome its recent weakness, the situation is still said to be critical. Those nations which are diverting money into war and preparations for war, are certainly including petroleum as an essential requirement, but in some instances any possible benefits to consumption are offset by enforced economy in the use of gasoline at home by the nations concerned.

Thus, the American oil exporting companies, while hopeful that the current tension abroad may be eased in the near future, do not see any indications of an immediate turn for the better.

The chief exception to the rule of hesitancy in the oil export markets is found in the lubricating oil division, particularly as applied to Pennsylvania lubricants, where a continued brisk demand for cylinder stocks is reported. Prices are holding firmly at recently advanced levels. Neutrals, however, are soft.

Paraffin wax, petrolatum and petroleum greases are in good demand, partly due to expectations of possible price advances in the near future.

RETAIL OIL MARKETS

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of April 14, 1936

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas a third grade and a premium grade are also available.

Discounts

Under the standard form of commercial consumer contract which went into effect March 1, 1934, save in California, Oregon, Washington, Arizona and Nevada, a discount of 1 cent a gallon off tank-wagon or 3 cents a gallon off retail prices is permitted for purchases between 4,000 and 10,000 gallons per month, or 4 cents a gallon off retail prices for purchases in lots of more than 10,000 gallons a month. The minimum delivery is 25 gallons.

Standard Oil Co. (Indiana)

	Gasoline: Tank wag.	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
Chicago	14.5	16.5	4.0	10.1
Decatur, Ill.	16.0	18.0	4.0	10.1
E. St. Louis	15.7	17.7	4.0	9.8
Joliet	16.0	18.0	4.0	10.1
Peoria	16.0	18.0	4.0	10.1
Quincy	15.8	17.8	4.0	9.9
Davenport, Ia.	16.0	(†)	4.0	10.1
Des Moines	15.8	(†)	4.0	9.9
Mason City	16.2	(†)	4.0	10.3
Sioux City	16.0	(†)	4.0	10.1
Duluth, Minn.	16.8	18.8	4.0	10.9
Mankato	16.4	18.4	4.0	10.5
Minneapolis	16.4	18.4	4.0	10.5
LaCrosse, Wis.	17.4	19.4	5.0	10.5
Green Bay	17.7	19.7	5.0	10.8
Milwaukee	16.2	18.2	5.0	10.4
Madison	17.4	19.4	5.0	10.5
Detroit, Mich.	14.0	16.0	4.0	8.3
Grand Rapids	16.4	18.4	4.0	9.3
Saginaw	16.6	18.6	4.0	9.6
Evansville, Ind.	17.7	19.7	5.0	10.6
Indianapolis	17.9	19.9	5.0	10.8
South Bend	18.1	20.1	5.0	11.0
Fargo, N. Dak.	17.4	19.4	4.0	11.5
Huron, S. Dak.	17.9	19.9	5.0	11.0
Sioux Falls	17.4	19.4	5.0	10.5
Kans. City, Mo.*	15.4	17.4	4.0	9.5
Springfield	15.1	17.1	4.0	9.2
St. Louis	15.7	17.7	4.0	9.8
St. Joseph*	15.4	17.4	4.0	9.5
Wichita, Kans.	14.9	16.9	4.0	7.1
Bartlesville, Ok.	17.0	19.0	5.0	8.8

*State tax 2 cents, 1-cent city tax and 1-cent federal tax.

†Standard Oil Co. (Indiana) has leased all service stations in Iowa.

Discounts to dealers except in Iowa: 3½ cents on premium and regular and 2½ cents on third grade off service station prices; discounts to dealers in metropolitan Chicago one-half cent larger than rest of Standard of Indiana territory, namely 4 cents and 3 cents on respective grades. Dealers in Iowa sold at posted "Dealer Prices."

Stanolex Fuel Oil in Chicago

Effective February 10, 1936, f.o.b. Chicago tank-wagon prices: Range oil, less than 100 gallons, 8.75 cents; 100-149 gallons, 7.75 cents; 150 gallons and more, 7.25 cents. 1 (24-40 lt. stw. zero), less than 100 gallons, 8.75 cents; 100-149 gallons, 7.75 cents; 150 gallons or more, 7.25 cents; No. 3, (22-26 zero), less than 150 gallons, 7.5 cents; 150 gallons or more, 6.5 cents; No. 4 (12-16 zero), less than 400 gallons, 7.5 cents; 400 gallons or more, 6.5 cents, viscosity of No. 4, 85° and 100° F.; No. 5, less than 400 gallons, 5.75 cents; 400 gallons or more, 4.75 cents.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline: Tank wag.	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
Denver, Colo.	17.0	19.0	5.0	11.0
Pueblo	17.0	19.0	5.0	13.0
Grand Junction	21.5	23.5	5.0	15.0
Casper, Wyo.	19.5	21.5	5.0	11.5
Cheyenne	19.5	21.5	5.0	13.0
Butte, Mont.	22.0	....	6.0	14.5
Billings	22.5	24.5	6.0	14.5
Helena	22.5	24.5	6.0	17.5
Great Falls	23.5	24.5	6.0	14.5
Salt Lake, Utah	21.0	23.0	5.0	16.0
Twin Falls, Ida.	23.0	25.0	6.0	15.0
Boise	22.5	24.5	6.0	15.0
Albu'que, N. M.	18.5	20.5	*5.5	13.0

*Includes one-half cent city tax.

Discount to dealers with or without contract in Continental territory: Undivided dealer discount off service station price, 4 cents; divided dealer accounts, 2½ cents.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline: Tank wag.	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
Atlanta, Ga.	20.5	22.5	7.0	*13.5
Augusta	20.0	22.0	7.0	*13.0
Macon	20.0	22.0	7.0	*14.5
Savannah	18.5	20.5	7.0	*13.0
Birm'ham, Ala.	21.0	23.0	8.0	12.0
Mobile	21.0	23.0	8.0	10.0
Montgomery	22.0	24.0	9.0	14.5
Jackson, Miss.	20.0	22.0	7.0	*13.0
Vicksburg	19.5	21.5	7.0	*13.0
Jacksonville, Fla.	18.0	20.0	8.0	12.0
Miami	19.5	21.5	8.0	13.5
Pensacola	21.5	23.5	9.0	12.0
Tampa	18.0	20.0	8.0	12.5
Lexington, Ky.	19.0	21.0	6.0	11.0
Covington	18.5	20.5	6.0	10.5
Louisville	19.0	21.0	6.0	10.0
Paducah	18.0	19.0	6.0	8.5

*Includes 1 cent state tax. Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile and Birmingham, Ala., each have a city gasoline tax of 1 cent per gallon. Pensacola, Fla., has a city gasoline tax of 1 cent.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline: Tank wag.	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
San Francisco	15.0	16.0	4.0	11.5
Los Angeles	14.5	15.5	4.0	9.0
Fresno, Calif.	15.5	16.5	4.0	11.0
Phoenix, Ariz.	19.0	20.0	6.0	‡16.0
Reno, Nev.	17.5	18.5	5.0	13.0
Portland, Ore.	17.5	18.5	6.0	13.5
Seattle, Wash.	17.5	18.5	6.0	13.5
Tacoma	17.5	18.5	6.0	13.5
Spokane	20.5	21.5	6.0	16.5

*Retail prices posted by Standard Stations, Inc., a subsidiary.

†Prices are at company's plant or depots, as company does not operate stations. A cent per gallon discount is given dealers and customers taking tank-wagon lots except in Phoenix where discount is 1 cent ‡Includes 5-cent state tax.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline: Tank wag.	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
Atl'tic City, N.J.	14.3	17.8	4.0	9.0
Newark	14.3	17.8	4.0	7.5
Annapolis, Md.	15.6	19.1	5.0	10.0
Baltimore	15.0	18.5	5.0	8.0
Cumberland	16.6	20.1	5.0	12.7
Wash'g'n, D. C.	13.0	16.5	3.0	9.0
Danville, Va.	17.5	21.0	6.0	12.9
Norfolk	16.0	19.5	6.0	11.8
Petersburg	16.5	20.0	6.0	11.7
Richmond	16.5	20.0	6.0	11.7
Roanoke	17.5	21.0	6.0	12.9
Charles'n, W.Va	15.5	19.3	5.0	12.6
Parkersburg	15.1	18.6	5.0	11.2
Wheeling	16.0	19.5	5.0	12.2
Charlotte, N. C.	18.7	22.2	7.0	12.9
Hickory	19.0	22.5	7.0	13.1
Mt. Airy	19.0	22.5	7.0	13.2
Raleigh	18.4	21.9	7.0	12.7
Salisbury	18.8	22.3	7.0	13.0
Charleston, S. C.	17.0	20.5	7.0	11.3
Columbia	18.3	21.8	7.0	12.6
Spartanburg	18.7	22.2	7.0	12.9

Tank-wagon gasoline refers to dealer instead of retail prices.

Price basis to dealers: Undivided dealers at regular price less one-half cent. Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except in New Jersey, where no discount (if necessary) is given.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline: Tank wag.	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
Omaha	18.4	20.4	6.0	10.4
McCook	19.1	21.1	6.0	11.1
Norfolk	18.8	20.8	6.0	10.8
North Platte	19.2	21.2	6.0	11.2
Scottsbluff	19.9	21.9	6.0	11.9

Note: Discounts to dealers: where service station gasoline prices are (maximum overall, including rent) as follows: Reliance, 2½ cents; Standard Red Crown, 3½ cents; Red Crown Ethyl, 3½ cents.

Where service station gasoline prices are below normal resellers' allowances are reduced one-half of the amount below normal, down to the following (minimum overall, including rent): Reliance, 2 cents; Standard Red Crown, 3 cents; Red Crown Ethyl, 3 cents. Discounts to consumers for tank-wagon deliveries covered only by Standard Commercial Consumers Contract, effective January 1, 1935.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline: Tank wag.	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
Philadelphia, Pa.	17.0	19.0	5.0	9.5
Pittsburgh	17.5	17.5	5.0	10.0
Allentown	17.0	19.0	5.0	9.5
Erie	16.5	16.5	5.0	9.0
Scranton	16.75	16.0	5.0	10.0
Altoona	17.5	19.5	5.0	9.5
Dover, Del.	17.0	17.0	5.0	10.0
Wilmington	16.5	16.5	5.0	9.5
Springf'ld, Mass.	14.0	17.5	4.0	7.5
Worcester	13.5	17.0	4.0	7.75
New Haven	13.0	16.5	4.0	7.5
Provdence, R. I.	12.0	15.5	3.0	7.25

Note—Tank-wagon prices are those applicable to consumers purchasing lots of 100 or more gallons in one delivery.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline: Tank wag.	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
N. Orleans, La.	18.5	22.0	‡9.0	12.0
Baton Rouge	17.5	21.0	†7.0	11.5
Alexandria	18.5	22.0	†*8.0	11.0
Lafayette	19.0	22.5	‡*8.0	12.5
Lake Charles	19.0	22.5	†*8.0	11.0
Shreveport	17.0	20.5	†7.0	11.0
Knoxville, Tenn.	21.0	24.5	8.0	14.0
Memphis	19.0	22.5	8.0	11.0
Chattanooga	20.5	24.0	8.0	11.5
Nashville	20.0	23.5	8.0	10.0
Bristol	18.75	21.5	8.0	14.5

*Includes city tax of 1 cent.

†Includes 1-cent parish tax. ‡Includes 3-cent parish tax.

Tank-wagon gasoline refers to dealer instead of retail prices.

Price basis to dealers: Undivided dealers at dealer price less one-half cent.

Louisiana kerosene prices include 1-cent state tax.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline: Post deal	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
Albany, N. Y.	14.0	17.5	5.0	7.75
*Met. N. Y.:				
Manhtn., Bronx	14.2	19.2	5.0	7.25
Staten Island	14.2	19.2	5.0	7.25
Qu'ns & Br'klyn	14.2	19.2	5.0	7.25
Buffalo	14.5	18.0	5.0	8.25
Rochester	14.5	18.0	5.0	8.25
Syracuse	14.5	18.0	5.0	8.75
Boston, Mass.	13.0	16.5	4.0	7.5
Portland, Me.	14.5	18.0	5.0	7.75
Manch'ter, N. H.	15.0	18.5	5.0	8.0
Burlington, Vt.	17.0	20.5	5.0	8.75
Hartford, Conn.	14.5	18.0	4.0	7.0

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes.

Southwestern District

MAGNOLIA PETROLEUM CO.

	Gasoline: Tank wag.	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
Dallas, Tex.	14.0	18.0	5.0	8.5
Fort Worth	13.5	17.0	5.0	8.5
Houston	13.5	17.0	5.0	8.5
San Antonio	13.5	17.0	5.0	8.5
El Paso	14.0	18.0	5.0	10.0
Muskogee, Ok.	15.0	19.0	5.0	8.0
Okla. City	14.0	17.0	5.0	8.0
Tulsa	15.0	19.0	5.0	8.0
Ft. Smith, Ark.	15.5	19.0	5.0	8.0
Little Rock	18.0	21.5	7.5	9.5
Texarkana	14.5	18.5	5.0	8.5

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gallon lots if covered by contract.

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline: Tank wag.	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
Ohio points	17.5	19.5	5.0	*13.5

*Includes state tax of 1 cent.

Canada*

Imperial 3-Star Gasoline
IMPERIAL OIL, LTD.

	Gasoline: Tank wag.	Gasoline: Serv. sta.	Gasoline: Inc. tax	Kero. tank wag.
Hamilton, Ont.	21.0	23.5	6.0	17.0
Toronto, Ont.	21.0	23.5	6.0	17.0
Brandon, Man.	30.5	32.5	7.0	23.0
Winnipeg, Man.	29.2	32.2	7.0	20.7
Regina, Sask.	30.5	33.5	7.0	23.0
Saskatoon, Sask.	33.3	36.3	7.0	24.8
Edmonton, Alta.	32.7	35.7	7.0	24.3
Calgary, Alta.	30.0	33.0	7.0	21.5
Vancouver, B. C.	26.0	29.0	7.0	24.0
Montreal, Que.	19.5	22.0	6.0	17.5
St. John, N. B.	25.0	29.0	8.0	19.5
Halifax, N. S.	25.0	29.0	8.0	19.5

*Imperial gallon used in Canada.

Discount to dealers: Divided dealers pay 3 cents per gallon below station price, undivided dealers pay 4 cents per gallon below station price except in cities of Hamilton, Toronto and Montreal where discounts below station price are one-half cent per gallon less.

Retail Price Changes

Standard Oil Co. of Kentucky March 20 reduced tank-wagon kerosene 1 cent in Augusta; April 1 advanced tank-wagon and station gasoline 1 cent in Mobile; and April 8 reduced tank-wagon kerosene 1.5 cents in Paducah.

Standard Oil Co. of New Jersey March 31 reduced tank-wagon kerosene .5 cent in Baltimore.

Standard Oil Co. of Louisiana April 1 increased tank-wagon kerosene 1.5 cents in Memphis.

Standard Oil Co. of California April 13 advanced gasoline prices throughout the Pacific Coast area. Advances were uniform on all grades. The price changes are not made in the accompanying table which reflect prices prevailing before the increase.

Continental Oil Co. April 7 reduced tank-wagon and station gasoline 2.5 cents in Albuquerque.

Crude Price Changes

Effective 7 a.m. April 9, 1936, Phillips Petroleum Co. posted the following crude price schedule in Gray, Carson and Hutchinson Counties, Texas. The price posted for sweet crude was 78 cents for crude below 31 gravity with a 2-cent differential to a top of 98 cents for sweet crude of 40 gravity and above. In Carson, Moore and Hutchinson Counties the schedule posted for sour crude was: Below 31 gravity, 73 cents with a differential of 2 cents to a top of 93 cents for 40 gravity or above crude. In Union and Ouachita Counties, Arkansas, a price of 75 cents per barrel for all gravities was posted. The price for crude in Oklahoma and Kansas is shown in the gravity table and is the same as that posted January 9, 1936.

Houston Oil Show

The Houston Oil Equipment and Engineering Exposition will open Monday, April 20, and continue through the week.

Tractor Fuel Demand

LETHBRIDGE, Alberta, April 11.—The demand for tractor fuel in southern Alberta this spring is reported by dealers to be the highest since 1929.

PRICES OF REFINED PRODUCTS

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of April 14, 1936

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
Below 63 octane	.05	.05½
63-70 octane	.06	.06½
60-62 400 grade:		
Below 63 octane	.05	.05¼
63-70 octane	.06	.06½
64-66 375	.05½	.05⅝
68-70 350	.05¼	.05½

NORTH TEXAS—

U. S. Motor grades:		
Below 63 octane	.05	.05¼
63-70 octane	.06	.06¼
60-62 400	.05	.05¼
64-66 375	.05¼	.05⅜

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

U. S. Motor grades:		
Below 63 octane		.05⅜
63-70 octane	.06⅜	.06¾
60-62 400	.05⅜	.06

ARKANSAS (Ark., N. La., Miss. del.)—

U. S. Motor grades:		
Below 63 octane		.05⅜
63-70 octane	.06⅜	.06¾

CHICAGO (based on Group 3)—

U. S. Motor grades:		
Below 63 octane	.05	.05¼
63-70 octane	.06	.06¼
60-62 400	.05	.05¼
64-66 375	.05¼	.05⅜
68-70 350	.05¼	.05½

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor:	
Below 60 octane	.05⅜
60-64.9 octane	.07
65-70 octane	.07¼
64-66 375	.05⅜
68-70 350	.06

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.04⅜	.06
58-60 400	.06¼	.06⅜

EAST COAST—

U. S. Motor, below 60 octane:	
*New York (Bayonne)	.06⅜
Baltimore	.06⅜
U. S. Motor, 60-64.9 octane:	
*New York (Bayonne)	.07
Philadelphia	.07
Boston	.07
Baltimore	.06⅜
Charleston, S. C.	.06⅜
U. S. Motor, 65 and above:	
*New York (Bayonne)	.07½
Philadelphia	.07½
Boston	.07¼
Baltimore	.07
Charleston, S. C.	.07

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:		
Below 60 octane	.05⅜	.05⅝
60-64.9 octane		.06
65 octane and higher	.06¼	.06¼

Naphtha

PENNSYLVANIA (inland refineries)—

50-52 450 (blending)	.05½
52-54 450 (blending)	.05½
54-56 450 (blending)	.05⅝

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70	.03	.03½
Grade 18-55	.03⅜	.04
Low vapor pressure grade:		
*14 lb. v.p. (max.)	.04½	.04⅝
*12 lb. v.p. (max.)	.04⅜	.05

*Nominal.

NORTH TEXAS—

Grade 26-70		.03
Grade 18-55	.03⅜	.03¾

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

Grade 26-70		.03⅜

CALIFORNIA—

75-85 375-390	.05	.05⅝

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 i.b.p., 110 flash, 540-550 e.p.	.04¼	.04⅜
41-43 gr., 300-350 i.b.p., 110-125 flash, 500-520 e.p.	.04¼	.04½
46-48 gr., 210-230 i.b.p., 450 max. e.p.		.05

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04½	.04⅝
42-44	.04⅝	.04⅝

NORTH TEXAS—

41-43	.04⅜	.04½

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

41-43		.04⅝

ARKANSAS (Ark., N. La., Miss. del.)—

41-43	.04⅜	.04¾

PENNSYLVANIA (inland refineries)—

45	.06½
46	.05⅝
47	.05⅝

CHICAGO (based on Group 3)—

41-43	.04¼	.04½
42-44	.04½	.04⅝

CALIFORNIA (Pac. Coast market)—

38-40 high burning test	.03½	.05

NEW YORK (Bayonne, N. J.)—

*41-43	.04⅞

GULF COAST (domestic)—

41-43	.03⅜	

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

No. 1 prime white, 38-42	.03⅝	.03⅞
No. 1 straw, 38-40	.03½	.03⅝
No. 2 straw, 32-36	.03⅜	.03½
No. 2 dark, 32-36	.03¼	.03⅜
No. 3, 28-32	.03⅛	.03¼
No. 3, 15 and above, 28-32	.02⅝	.02⅝

NORTH TEXAS—

No. 1 prime white, 38-42	.03⅝	.03⅝
No. 1 straw, 38-40	.03½	.03⅝

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

No. 2, 32-36	.03¼	.03½

ARKANSAS (Ark., N. La., Miss. del.)—

No. 2, 32-36	.03⅜	.03⅝
No. 3, 28-32	.03¼	.03½

CHICAGO (based on Group 3)—

No. 1 prime white, 38-40	.03⅝	.03⅞
No. 1 straw, 38-40	.03½	.03¾
No. 2 straw, 32-36	.03⅜	.03⅝
No. 2 dark, 32-36	.03¼	.03⅜
No. 3, zero to 15, 28-32	.03⅛	.03⅜
No. 3, 15 and above, 28-32	.02⅝	.02½

NEW YORK (Bayonne, N. J.)—

*No. 1	.04⅞
*No. 2	.04½
*No. 4	.04¼

*Barge deliveries one-eighth to one-fourth cent under above, tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02½	.02⅝
No. 4, 24-28	.92½	1.00
No. 4, 15 and above, 24-28	.77½	.82½
No. 5	.70	.75
No. 6	.65	.70
Below 18 fuel oil, industrial	.62½	.67½

NORTH TEXAS—

U.G.I. gas oil	.02½	.02⅝
No. 4, 24-28	.92½	1.00
No. 5	.70	.75
No. 6	.65	.70
Below 18 fuel oil, industrial	.62½	.67½

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

U.G.I. gas oil	.02⅝	.03
10-14 fuel oil, industrial	.70	.75

ARKANSAS (Ark., N. La., Miss. del.)—

10-14 fuel oil, industrial	.60	.65

CHICAGO (based on Group 3)—

U.G.I. gas oil	.02⅝	.02½
No. 4, 24-28	.95	1.00
No. 4, 15 and above, 24-28	.77½	.82½
No. 5, 18-32	.72½	.75
No. 6, 10-16	.62½	.67½

Fuel oils of more than 40 cold test generally 5 to 15 cents per bbl. in these areas.

PENNSYLVANIA (inland refineries)—

36-40	.04¾	.04⅞

CALIFORNIA—

Los Angeles:

30-34 gas oil, per bbl.	1.05	1.20
27 plus diesel	1.05	1.25
27 plus diesel (bunkers)	1.20	1.30
12-16 (bunkers at tidewater)	.85	.95
10-16 (cargo lots)	.80	.95
12-17 (tankcars)	.70	.95
San Joaquin Valley:		
10-18 (tankcars)	.65	.75
San Francisco:		
27 plus diesel, per bbl.		1.30
27 plus diesel (bunkers)		1.35
10-16 (bunkers)		1.00

GULF COAST—

28-30 gas oil	.03¼	.03⅜
28-30 diesel (bunkers)		1.50
Bunker C (bulk cargoes)		.80
Bunker C (bunkers)		.90

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04⅜
28-30 diesel (lighterage 6¼ plus per bbl.)		1.65
28-30 diesel (tankers)		.04½
*Bunker C (to ocean-going ships in N. Y. harbor)		1.05
Industrial fuel (tankcars)		.04

*Lighterage charge 5c bbl. additional.

Bright and Steam-Refined

OKLAHOMA (Group 3)—

Bright Stocks:	
190-200 D, 15-25	.20
150-160 D, 0-10	.17
150-160 D, 15-25	.16½
150-160 E, 15-25	.16
100-110 D, 0-10	.15⅝
Steam refined:	
630 green (treated)	.10½
600 light green (untreated)	.09
600 dark green (untreated)	.06½ .07½

PENNSYLVANIA—

Bright Stocks (Pennsylvania grade, No. 8 color, 145-50 at 510; 540-550 flash):		
10 pour test	.22½	.23
15 pour test	.21½	.22
20 pour test	.20½	.21
25 pour test	.19½	.20
Steam refined:		
600	.11	.11½
650	.12½	.13
600 Pennsylvania flash	.13½	.14
630 flash	.17½	.18
600 Warren E filtered	.13½	.14

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:	
150-3	.10
180-3	.11½
180-4	.10⅝
200-3	.11⅝
200-4	.11¼
250-3	.13⅝
250-4	.13¼
280-3	.14⅝
280-4	.14¼
300-3½	.15¼
400-3½	.16
100-2 paraffin oil	.05⅝
15-20 Cold Test:	
200-3	.10⅜
200-4	.10¼
240-3	.12⅜
240-4	.12¼
280-3	.13⅜
280-4	.13¼

GULF COAST—

Pale Oils:		
200-3	.07	.07½
300-3	.07½	.08
500-3½	.08⅛	.09
750-3½	.09	.09½
1,200-3½	.09½	.09⅝
2,000-4	.09⅝	.10
Red Oils:		
200-5-6	.07	.07½
300-5-6	.07½	.07⅝
500-5-6	.08	.08½
750	.08½	.09
1,200-5-6	.09	.09⅝

CALIFORNIA (moving to dom. market)

Pale Oils:		
100-2½-3	.06⅛	.06⅜
200-2½-3	.06⅜	.07
300-3-3½	.07	.07½
400-3-4	.09	.09½
450-3-4	.09⅜	.10
550-3-4	.10	.10½
600-3-4	.10¼	.10½
Red Oils:		
200-4-5	.06½	.06⅝
300-5-6	.06⅝	.07
350-5-6	.07	.07½
400-5-6	.08	.08¼
450-5-6	.08¼	.08½
500-5-6	.08½	.08⅝
600-5-6½	.09	.09½
700-6½ plus	.09½	.10
750-6½ plus	.10	.10¼
900-6½ plus	.10¼	.10½

PENNSYLVANIA—

150 vis. at 70° F., color, 400-405 flash:		
Zero pour test	.18½	.19
10 pour test	.17½	.18
15 pour test	.17	.17½
25 pour test	.16	.16½
180 vis. at 70° F., 3 color:		
25 pour test	.19	.19½
200 vis. at 70° F., 3 color:		
Zero pour test	.22½	.23
10 pour test	.21½	.22
15 pour test	.21	.21½
25 pour test	.20	.20½

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale	.02⅝

PENNSYLVANIA (inland refineries)—

122-124 (a.m.p.) w.c. scale	.0255	.0260
124-126 (a.m.p.) w.c. scale	.0260	.0265

NEW YORK—

Wax in bags fully refined:		
123-125 (a.m.p.) wax		.0445
125-127 (a.m.p.) wax		.0455
128-130 (a.m.p.) wax		.0480
130-132 (a.m.p.) wax		.0505
133-135 (a.m.p.) wax		.0535
135-137 (a.m.p.) wax		.0560
124-126 (a.m.p.) w.s.	.0240	.0250
124-126 (a.m.p.) y.s.	.0240	.0245
Petrolatum in barrels, carload lots:		
Dark green		.01⅞
Amber	.02⅜	.03
Extra amber	.03	.03½
Lily white	.06⅜	.06¾
Snow white	.07¾	.07⅞
Cream	.05⅝	.05⅝

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.05⅝	.05⅞
60-62 400		.05½
61-63 390		.05⅝
64-66 375		.05⅝

LOS ANGELES—

U. S. Motor grades:		
53-55 octane		.04¼
55-56 octane	.04¼	.04½
65-67 octane	.04½	.04⅝
67-69 octane	.04⅝	.05
Above 69 octane	.05	.05½
65 and above 400 e.p.	.05¼	.05⅝

KEROSENE

GULF COAST—

41-43 prime white	.03⅞
41-43 water white	.04
44 water white	.04¼

LOS ANGELES—

41-43 water white	.04¼	.04⅜

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s. in bbls.)—

Cylinder Stocks:		
600 Warren E		.20½
600 S.R. unfiltered	.18½	.19
650 S.R. unfiltered	.19	.19½
600 flash S.R.	.20½	.21
630 flash S.R.	.23½	.24
Bright Stocks:		
8 color		.26
6½ plus color in dilution		.25½

NEUTRAL OIL

200-3 color	.26½	.27
150-3 color	.22½	.23

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 a.m.p.		.04125
125-127 a.m.p.		.0425
128-130 a.m.p.		.0450
132-135 a.m.p.		.0525
135-137 a.m.p.		.0550
Crude scale:		
124-126 w.s.	.0240	.0250
124-126 y.s.	.0240	.0245

CRUDE OIL PRICES

Oklahoma, Kansas, North Central and East Central Texas

(January 9, 1936)

East Texas*	$1.15
Van, Tex.†	1.02
Altus and Tipton, Okla.‡	1.02
Other fields (see gravity table).	

*All companies. †Pure Oil Co. ‡Gypsy Oil Co.

West Texas

Crane, Upton, Howard, Glasscock and Mitchell Counties	$ .80
Winkler County	.85
Lea County, N. Mex.	.85
Pecos County*	.85
Pecos shallow†	.75

*Shell Petroleum Co., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Petroleum Corp.

Note—For Humble, Magnolia and Texas Co.'s West Texas and Lea County prices see gravity table. Above prices are those of other buyers.

Rocky Mountain States

(Effective January 9, 1936)

Iles, Colo., light*	$1.06
Iles, Colo., heavy*	1.00
Greybull, Wyo.*	1.32
Torchlight, Wyo.*	1.32
Grass Creek, Wyo., light*†	1.32
Grass Creek, Wyo., heavy*†	.72
Hamilton Dome, Wyo.*	.67
Elk Basin, Wyo., light*†	1.32
Frannie, Wyo., heavy*	.72
Frannie, Wyo., light (Feb. 24, 1936)*	.76
Hogback, N. Mex.*	1.21
Pondera, Mont.* (Jan. 29, 1936)	1.05
Salt Creek, Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.	
Big Muddy, Wyo.†	1.11
Rock Creek, Wyo.†	1.13
Artesia, N. Mex. (Dec. 1, 1933)‡	.75
Maljamar, N. Mex. (Sept. 22, 1933)‡	.75
Fort Collins and Wellington, Colo.‡ (Jan. 9, 1936)	See Note
Florence, Colo.	.93
Lance Creek, Wyo.	.85
Lost Soldier, Wyo. (Sept. 30, 1933)	.85
Hudson, Wyo. (June 2, 1931)	.65
Sunburst, Mont.	1.25
Cat Creek, Mont.	1.28
Cut Bank, Mont. (May 23, 1934)	1.45

*Stanolind Oil & Gas Co. †Ohio Oil Co. ‡Continental Oil Co.

Note—Fort Collins and Wellington are not posted, price 5 cents under quotation of Salt Creek crude of like gravity (Fort Collins 34°; Wellington 32°). *Stanolind Oil & Gas Co. †Ohio Oil Co. ‡Continental Oil Co.

Southwest Texas

(January 9, 1936)

Saxet	$ .90
Mirando	.85
Pettus	1.25
Salt Flat*	.97
Salt Flat‡	.97
Darst Creek*	.97
Darst Creek†	.97
Luling	.90
Lytton Springs	1.00
Duval County	.85

*Humble Oil & Refining Co. †Magnolia Petroleum Co., Gulf Pipe Line Co. and Texas Co. ‡Shell Petroleum Corp. Saxet posted by Humble and Texas; Mirando by Humble and Magnolia; Pettus by Humble; Salt Flat by Humble; Luling and Lytton Springs by Magnolia; Duvall by Texas Co.

Middle Western States

OHIO OIL CO.

Lima (Jan. 10, 1936)	$1.35
Illinois (Jan. 9, 1936)	1.33
Princeton, Ind. (Jan. 9, 1936)	1.33
Vidland, Mich. (Jan. 13, 1936)*	1.32
West Branch, Mich. (Jan. 14, 1936)	1.16
Muskegon, Mich.	1.00
Eastern Kentucky:	
Big Sandy River (Jan. 9, 1936)	1.30
Kentucky River (Jan. 9, 1936)	1.33
Western Kentucky (Jan. 9, 1936)	1.22

*Posted by Pure Oil Co. and Simrall Corp. and includes Greendale, Porter, Beaverton and Crystal crudes. West Branch, Mich., by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Oceana posted by Old Dutch Refining Co. and Naph-Sol Refining Co.

Gulf Coast

(January 9, 1936)

Cleveland, Tex.	$1.10
Hardin, Tex.	1.03
Greta, Tex.	.90
Refugio, Tex., heavy	.90
Tomball, Tex.	1.30
LaFitte, La.	1.12
Livingston, Tex.	1.15
Bosco, La. (Jan. 16, 1936)	1.05
Evangeline, La.	1.07
Welsh, La.	.96

Cleveland and Hardin by Magnolia; Greta by Texas Co.; Refugio by Humble; Tomball by Humble and Magnolia; LaFitte by Texas Co.; Bosco by Pure; Evangeline and Welsh by Stanolind Oil & Gas Co.; Livingston by Shell Petroleum Corp.

North Louisiana and Arkansas

Smackover, all grades (Jan. 10, 1936)*	$ .75
Smackover, all grades (Jan. 9, 1936)†	.80
Tullos and Urania (Jan. 10, 1936)	.97
Nevada, Ark. (Jan. 10, 1936)	.65
El Dorado East Field (Jan. 16, 1936)	.75
Converse, Holly, Pleasant Hill and Zwolle (Jan. 10, 1936)*	1.10
Lisbon, Ark. (Jan. 10, 1936)*	1.10
Elm Grove, La. (Jan. 10, 1936)	.80

*Standard Oil Co. of Louisiana, Gulf Refining Co., Louisiana Oil Refining Co., Texas Co. (effective January 14) and Magnolia Petroleum Co. (effective January 16). Urania by H. L. Hunt Co. and Louisiana Oil Refining Co. Nevada by Standard of Louisiana. El Dorado East field by Magnolia Petroleum Co. Phillips Petroleum Co. (effective January 17), posts 75 cents for all grades in Union and Ouachita Counties, Arkansas.

Eastern States

TIDE WATER PIPE CO.
(Effective Jan. 13, 1936)

Bradford, Pa.	$2.45
Allegany, N. Y.	2.45

SOUTH PENN OIL CO.
(Effective Jan. 13, 1936)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	2.45
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.17
Pennsylvania Grade Oil in Eureka Pipe Line lines	2.13
Pennsylvania Grade Oil in Buckeye Pipe Line lines	1.97
Corning Grade Oil in Buckeye Pipe Line Co.'s lines	1.43

PENNZOIL CO.
(Effective Jan. 13, 1936)

Pennsylvania Grade Oil in National Transit Lines:	
Group A — Includes Cochran, Franklin, Hamilton and Doolittle districts.	2.43
Group B — Includes Titusville district.	2.41
Group C — Includes Turkey and Tidioute districts.	2.40
Group D — Includes Bear Creek and Porkey districts.	2.39
Group E — Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredlin, McJunkin, Jameson, Kenerdell, Emlenton, Tiona, Lacey and Kinzua districts.	2.38
Price depends on lengths of pipe line haul to plant at Oil City.	

PURE OIL CO.
(Effective Jan. 13, 1936)

Cabin Creek, W. Va.	$2.13
Bradford Hollow, W. Va.	2.13
Kelly Creek, W. Va.	2.13

Canada

Ontario (Sept. 9, 1933):	
Petrolia*	$2.10
Oil Springs	2.17
Turner Valley (Feb. 3, 1936):††	
Clear naphtha	2.70
Discolored naphtha	2.46
Crude oil, 50 gravity	2.33
Crude oil, 45 to 49.9	2.13
Crude oil, 40 to 44.9	1.55

*Imperial Oil, Ltd. †Imperial Oil, Ltd., and Regal Oil & Refining Co.

Mexico

Panuco*	$ .82

*F.o.b. ship, based on February transactions and exclusive of production and export taxes and bar dues.

Crude Prices by Gravities

Gravity—	Oklahoma, Kansas, and Salt Creek, Wyo.	Central and North Texas	East Central Texas	North Louisiana, Arkansas	Gray County, Texas	Carson and Hutchinson Counties, Texas	Conroe, Texas	West Texas and Lea County, New Mexico	Gulf Coast, Texas and Louisiana	Anahuac and Dickinson, Texas	Iowa and Cameron Meadows, Texas
Below 20	....	....	....	....	....	....	....	....	$.92	....	$.82
20-20.9	....	....	....	....	....	....	....	....	.94	....	.84
21-21.9	....	....	....	....	....	....	....	....	.96	....	.86
22-22.9	....	....	....	....	....	....	....	....	.98	....	.88
23-23.9	....	....	....	....	....	....	....	....	1.00	....	.90
24-24.9	....	....	....	....	....	....	....	....	1.02	....	.92
Below 25	$.86	....	....	$.78	....	....	....	....	....	....	....
25-25.9	.88	....	....	.80	....	....	....	....	1.04	....	.94
26-26.9	.90	....	....	.82	....	....	....	....	1.06	....	.96
27-27.9	.92	....	....	.84	....	....	....	....	1.08	....	.98
28-28.9	.94	....	....	.86	....	....	....	....	1.10	....	1.00
Below 29	.94	$.84	$.91	....	....	....	....	$.75	....	....	....
29-29.9	.96	.86	.93	.88	....	....	....	.76	1.12	....	1.02
30-30.9	.98	.88	.95	.90	....	....	....	.78	1.14	$1.04	1.04
31-31.9	1.00	.90	.97	.92	....	....	....	.80	1.16	1.06	1.06
32-32.9	1.02	.92	.99	.94	....	....	....	.82	1.18	1.08	1.08
33-33.9	1.04	.94	1.01	.96	....	....	....	.84	1.20	1.10	1.10
34-34.9	1.06	.96	1.03	.98	....	....	....	.86	1.22	1.12	1.12
Below 35	....	....	....	....	$.86	$.81	....	....	....	....	....
35-35.9	1.08	.98	1.05	1.00	.88	.83	$1.24	.88	1.22	1.14	1.12
36-36.9	1.10	1.00	1.07	1.02	.90	.85	1.26	.90	1.22	1.16	1.12
37-37.9	1.12	1.02	1.09	1.04	.92	.87	1.28	.90	1.22	1.18	1.12
38-38.9	1.14	1.04	1.11	1.06	.94	.89	1.30	.90	1.22	1.20	1.12
39-39.9	1.16	1.06	1.13	1.08	.96	.91	1.32	.90	1.22	1.22	1.12
40 and over	1.18	1.08	1.15	1.10	.98	.93	1.34	.90	1.22	1.24	1.12

Magnolia Petroleum Co. in the East Central Texas field pays 7 cents per barrel less than above posted prices in that field.

S. S. Smith, of the Shell Petroleum Corporation, St. Louis, Mo., was a recent business visitor at the company's Tulsa offices. He was head of the natural gasoline department at Tulsa before his transfer to St. Louis.

STANDARD OIL CO. OF CALIFORNIA

Crude oil prices at the well effective March 7, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canon	Athens-Rosecrans	Dominguez	Elwood Terrace	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills	Buena Vista Hills Midway-Sunset except Lakeview Area	Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	....	....	....	$.80	$.76	$.76	$.77	$.78	....	....	$.65	$.70	$.65	$.70	$.70	....	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.65	.70	.65	.70	.70	....	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.65	.70	.65	.70	.70	....	....
17-17.9	.80	.79	.74	.78	.81	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.65	.70	.65	.70	.70	....	....
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	....	.82	.76	.76	.77	.78	....	....	.65	.70	.65	.70	.70	....	....
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	....	.85	.76	.78	.77	.78	....	$.70	.66	.74	.66	.74	.71	$.70	....
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	....	.88	.78	.82	.77	.80	....	.70	.68	.78	.68	.78	.72	.70	....
21-21.9	.88	.79	.74	.89	.93	.92	.88	....	....	....	.91	.80	.85	.77	.84	$.75	.73	.71	.82	.71	.82	.74	.70	....
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	....	.93	.84	.89	.79	.88	.78	.77	.74	.87	.74	.86	.75	.72	....
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	....	.96	.88	.93	.82	.92	.78	.80	.77	.92	.77	.90	.82	.76	....
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	....	.99	.91	.96	.85	.96	.82	.84	.80	.97	.80	.94	.86	.79	....
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.02	.92	.83	....	1.02	.95	....	.89	.99	.86	.88	.83	1.01	.83	.98	.90	.82	....
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	....	1.05	.98	....	.92	1.03	.90	.91	.86	1.06	.86	1.02	....	....	....
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	1.02	....	....	.96	1.06	.95	.95	.88	1.10	.88	1.06	....	....	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	....	1.06	....	.99	1.10	.99	.99	.91	1.15	.91	1.10	....	....	....
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	....	1.09	....	....	1.03	1.14	1.03	1.02	.94	1.20	.94	1.14	....	....	....
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	....	....	....	1.07	1.17	1.08	1.06	.97	1.25	.97	1.18	....	....	....
31-31.9	....	....	....	....	1.24	Pipe	1.24	1.22	.97	Ship	....	....	....	1.11	1.21	1.12	1.09	.99	1.29	.99	....	....	....	....
32-32.9	....	....	....	....	1.27	Line	1.27	1.27	1.00	....	....	....	....	1.14	1.25	1.16	1.13	1.02	1.34	1.02	....	....	....	....
33-33.9	....	....	....	....	....	....	....	1.32	....	$1.28	....	....	....	1.18	1.28	1.20	1.17	1.04	1.38	1.04	....	....	....	$1.19
34-34.9	....	....	....	....	....	....	....	1.37	....	1.32	....	....	....	1.22	1.32	1.25	1.20	....	....	....	....	....	....	1.23
35-35.9	....	....	....	....	....	....	....	1.42	....	1.35	....	....	....	1.25	....	1.29	....	....	....	....	....	....	....	1.27
36-36.9	....	....	....	....	....	....	....	1.46	....	1.39	....	....	....	1.29	....	1.33	....	....	....	....	....	....	....	1.31
37-37.9	....	....	....	....	....	....	....	1.51	....	1.43	....	....	....	1.32	....	1.37	....	....	....	....	....	....	....	1.35
38-38.9	....	....	....	....	....	....	....	1.56	....	....	....	....	....	1.36	....	1.42	....	....	....	....	....	....	....	1.39
39-39.9	....	....	....	....	....	....	....	1.61	....	....	....	....	....	1.40	....	....	....	....	....	....	....	....	....	1.43
40-40.9	....	....	....	....	....	....	....	1.66	....	....	....	....	....	1.43	....	....	....	....	....	....	....	....	....	....

Newhall, McKittrick, Kern River and Round Mountain 70 cents for all grades. Kern Front 70 cents for all grades.

Market Record of Active Oil Stocks Listed on New York Stock Exchange

Compiled by Carl H. Pforsheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1936 High	1936 Low	Week ended April 11 Sales	Week ended April 11 High	Week ended April 11 Low	Week ended April 11 Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	Dividends paid in 1935	1935 High	1935 Low	1934 High	1934 Low
125½	75	800	115½	114	114	Amerada Corp.	788,675	N.P.	50cQ	4-30-36	$2.00	80	48½	55⅝	39
35⅛	27⅛	13,400	34⅞	32½	32½	Atlantic Refining	2,664,904	$25	25cQ	3-16-36	1.00	28	20½	35¼	21½
20	14⅛	63,200	20	18½	19⅛	Barnsdall Corp.	2,195,397	$5	15cQ†	5-1-36	‡.20	14¾	5⅞	10	5⅞
21⅝	14	90,500	21⅝	20½	21	Columbia Gas & Elec.	11,610,036	N.P.	20c	5-15-36	.20	15¾	3⅜	19¼	6⅝
15¼	11⅞	49,500	14¾	14⅛	14¼	Consolidated Oil Corp.	13,996,072	N.P.	25c	4-7-36	.25	12¼	6½	14¼	7¼
38½	33½	18,200	36½	35¾	35⅞	Continental Oil of Delaware	4,682,722	$5	25c	4-30-36	.62½	35	15½	22¾	15¾
34¾	22	3,900	32⅞	31½	31¾	General Asphalt	387,149	$10	25c	12-17-35	.25	22½	11¾	23½	12
12¼	6⅜	10,100	11	10¼	10¼	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	7	1½	5⅝	2½
23	18¼	9,900	23	22	22⅛	Mid-Continent Petroleum	1,857,912	$10	40cSA	6-1-36	.40	20½	9½	14¾	9⅛
40	19⅞	4,500	40	38	38⅞	National Supply of Delaware	382,591	$25	....	5-15-31	....	20¾	9	21⅛	10
17½	13½	14,300	15	14½	14½	Ohio Oil Co.	6,563,377	N.P.	15cSA	12-14-35	.30	14¼	9¼	15⅞	8½
18	13⅛	1,200	15	13¾	14½	Pacific Western Oil	1,000,000	N.P.	40c	11-30-34	.25	14	6¾	9⅝	5½
4¼	1⅜	8,600	4¼	3	3	Panhandle P. & R.	198,770	N.P.	....	.....	....	1⅞	½	2½	⅝
49⅜	38⅛	13,800	48¾	47⅛	47⅝	Phillips Petroleum	4,154,687	N.P.	25c	2-29-36	1.25	40	13¾	20¾	13⅜
16½	11⅞	9,400	16⅜	15¾	15¾	Plymouth Oil Co.	1,050,000	$5	25c	3-30-35	.25	13	6½	16¾	7¼
24⅞	16⅝	45,500	23⅞	22½	22⅞	Pure Oil Co.	3,038,370	N.P.	....	9-1-30	....	17	5⅞	14⅞	6⅛
57	48⅜	1,200	55½	55¼	55½	Royal Dutch N. Y. shares	fl. 503,642,000	fl. 100	$1.70	8-1-35	1.70	48½	29½	39⅛	28⅝
43⅝	33¼	4,700	39⅜	38⅝	38⅝	Seaboard Oil of Delaware	1,244,283	N.P.	15cQ†	3-14-36	1.00	36⅞	20¾	38⅜	20¾
19¼	15¼	8,300	17⅞	17	17½	Shell Union Oil	13,070,625	N.P.	....	6-30-30	....	16½	5½	11½	6
120	110½	400	115¼	113	114½	Shell Union Oil pfd.	400,000	$100	....	7-1-31	....	111	63½	89	57
6¾	5	1,600	5⅛	5	5	Simms Petroleum	461,698	$10	1.00 liq.	1-27-36	11.75 liq.	18¾	4¾	17⅛	7¼
31½	19½	3,200	30	29⅜	30	Skelly Oil	1,008,514	$15	....	12-15-30	....	20½	6½	11½	6
17	14	35,700	15	14⅝	14⅞	Socony-Vacuum	31,154,379	$15	20cSA	3-16-36	.30	15⅜	10⅝	19⅞	12½
47⅝	39⅞	16,300	46	43⅝	44⅝	Standard Oil of California	13,102,900	N.P.	25cQ†	3-16-36	1.00	41⅛	27¾	42⅛	26½
40⅛	32¾	13,000	39⅜	38¼	38¾	Standard Oil (Indiana)	15,215,677	$25	25cQ	3-16-36	1.00	33⅜	23	32¾	23¼
30	25	200	29⅞	29¾	29⅞	Standard Oil of Kansas	200,000	$10	50cQ	10-31-34	....	32	20	41	26
70	51⅛	33,000	67⅜	65	65	Standard Oil of New Jersey	25,856,081	$25	50cSA†	12-16-35	‖1.25	52⅜	35⅜	50⅛	39¼
91	72	1,000	86	85⅛	85⅛	Sun Oil	1,733,013	N.P.	25cQ	3-16-36	$1 & 7% Stk.	77	60½	74¼	51½
39½	28⅞	36,200	39½	38⅛	38½	Texas Corp.	9,486,417	$25	25cQ	4-1-36	1.00	30¼	16½	29⅜	19⅝
15¼	7½	13,100	12⅞	11⅝	12	Texas Pacific Coal & Oil	880,703	$10	....	12-31-29	....	9¼	3¼	6½	2½
19⅛	14¾	10,700	18¼	17½	17¾	Tide Water Associated	5,631,341	N.P.	25c	1-15-36	....	15⅞	7⅝	14⅜	8
106½	100⅝	800	105½	104½	105	Tide Water Associated pfd.	666,524	$100	$1.50Q	4-1-36	§6.50	104½	84	87	64½
28½	23⅞	9,000	27⅜	25¼	25¼	Union Oil of California	4,386,070	$25	25cQ	5-9-36	1.00	24	14¾	20½	11½
31⅝	22⅝	1,600	28⅛	26	26⅝	Union Tank Car Co.	1,200,000	N.P.	30cQ	3-2-36	1.20	26½	20⅞	25¾	15⅝
5¼	2¾	7,100	5¼	4¼	4½	Wilcox Oil & Gas	424,839	$5	....	5-10-28	....	3⅛	1	5¾	2

*Ex-dividend. †Plus extras. ‡Also 50 per cent in stock of Barnsdall Ref. §Partly on account of accumulation. ‖Dividend 4/75 Mission Corp. paid 3-15-35.

Market Record of Active Oil Stocks Listed on New York Curb

Compiled by Carl H. Pforsheimer Co., 25 Broad Street, New York City, Members New York Stock Exchange and New York Curb Exchange

1936 High	1936 Low	Week ended April 11 Sales	Week ended April 11 High	Week ended April 11 Low	Week ended April 11 Close	Stocks—	Total shares outstanding	Par value	Dividend rate	Payable or last paid	Dividends paid in 1935	1935 High	1935 Low	1934 High	1934 Low
20¼	13¼	5,000	19⅞	18½	19¾	Bridgeport Machine Co.	150,000	N.P.	....	5-1-30	....	14⅛	3¾	3¾	⅛
50	39¾	200	44	42⅞	43¾	Buckeye Pipe Line Co.	200,000	$50	75cQ	3-14-36	$3.00	42½	30½	38	26
4⅞	2½	10,000	4¼	3¾	3⅞	Carib Syndicate	799,020	25c	....	.....	....	4¼	1⅝	5½	1½
124¾	113½	250	115	113½	113½	Chesebrough Mfg. Co.	120,000	$25	$1Q†	3-31-36	6.50	157	115	150	116
7⅜	3	32,800	5⅛	4⅞	4⅞	Cities Service	37,804,394	N.P.	....	6-1-32	....	3¼	¾	4¼	1⅛
4	1⅛	4,100	3⅛	2⅞	2⅞	Colon Oil	2,200,000	N.P.	....	.....	....	2⅛	½	3¼	½
4⅛	1½	5,000	3½	3⅛	3¼	Cosden Oil	399,687	$1	....	.....	....	1½	¼	3⅞	½
34¾	19⅞	10,700	30½	28⅝	28⅝	Creole Petroleum	6,974,356	$5	20c	12-31-35	.20	23¾	10	14⅜	9⅝
12	9	1,500	12	11⅝	11⅝	Darby Petroleum	509,696	$5	25cSA	1-15-36	.50	8⅞	4	7½	4⅛
4⅜	1⅞	7,400	4⅜	3¾	4	Derby Oil & Refining	263,162	N.P.	....	.. ..	....	2	¾	2¼	1
44	39	100	41	41	41	Eureka Pipe Line	50,000	$50	$1Q	5-1-36	4.00	38	33¼	37	30
98	72	6,200	96½	93½	96	Gulf Oil Corp.	4,538,101	$25	25c	4-1-36	....	74¾	50¼	76¾	49¾
76½	62½	1,500	71⅝	70⅝	71	Humble Oil & Refining (new)	8,923,935	N.P.	25cQ	4-1-36	1.25	64	44	49½	33¼
24½	20	13,200	24½	23¾	23¾	Imperial Oil of Canada	26,919,871	N.P.	62½cSA†‡	12-2-35	1.25	22½	15⅜	17⅞	12⅝
9¼	5½	500	8	7½	7½	Indiana Pipe Line	300,000	$10	20cSA	5-15-36	.35	6⅛	3⅝	6⅞	3⅝
39⅝	33½	13,300	39⅝	38¼	38¼	International Petroleum	14,247,088	N.P.	$1.25†‡	12-2-35	2.50	39¾	28	33⅜	19⅝
15⅛	9⅞	10,100	14⅜	13½	13½	Louisiana Land & Exp.	3,000,000	N.P.	10cQ	3-16-36	.10	11⅜	4⅜	5	2⅛
15	7⅜	1,100	13⅜	12½	12½	Lion Oil Refining	270,000	N.P.	....	10-27-30	....	8¼	3½	6	3⅜
14¼	9⅞	14,400	14¼	13¼	14	Lone Star Gas	5,382,723	N.P.	20cSA	2-15-36	.30	10⅞	4½	8⅜	4¼
8⅜	5	1,400	7	6½	6½	Mountain Producers	1,682,182	$10	30cSA	12-31-35	.90	5¾	4⅛	5½	4
23	19¼	4,100	22	21	21¼	National Fuel Gas	3,810,183	N.P.	25cQ	4-15-36	1.25	20	11¾	18⅛	13⅛
15¾	10¼	900	12⅞	12⅛	12¼	National Transit	509,000	$12.50	35cSA	12-16-35	.75	10⅝	6¾	9½	7
4½	2⅞	800	4⅛	3	4⅛	New Bradford Oil	1,445,202	$5	10cSA	5-15-36	.20	3¼	2	2½	1¾
6⅝	1⅝	600	4⅝	4½	4½	New Mexico and Arizona	1,000,000	$1	....	.	....	2½	1	2¾	1
6¼	4½	No sales ..	..	..	..	New York Transit	100,000	$5	15cSA	4-15-36	.30	4⅞	3	4¾	3
9¼	7	300	7½	7¼	7⅜	Northern Pipe Line	120,000	$10	25cSA	2-2-36	.50	8	5¼	7	4⅝
6¼	3¼	78,100	6¼	5⅝	5¾	Pantepec Oil	1,608,700	N.P.	....	.....	....	4⅜	1¼	2⅝	⅞
19¼	4½	11,200	17¾	16	17¼	Root Petroleum Co.	336,045	$1	....	.....	....	5	1½	....	....
4¾	1⅞	7,700	4¾	3½	4	Ryan Consolidated	296,931	N.P.	....	.. ...	....	2½	⅝	3⅜	⅞
10	7	600	8⅜	8⅛	8¼	Salt Creek Producers	1,496,859	$10	40cSA	12-31-35	1.20	7½	5½	7⅞	5½
40½	32½	1,600	40½	40	40	South Penn Oil	1,200,000	$25	50c†	3-31-36	1.35	34½	21⅝	26½	17½
7¾	4⅝	300	5⅞	5¾	5¾	Southern Pipe Line	100,000	$10	15cSA	3-2-36	.30	5	3⅞	5½	3½
56	54	No sales ..	..	..	..	Southwest Penna. Pipe Lines	35,000	$50	$1Q	4-1-36	5.00	56	44¼	47	41
23⅜	18	6,700	18¾	18	18¼	Standard Oil of Kentucky	2,604,790	$10	25cQ†	3-16-36	1.25	24	18	18⅜	14⅝
14⅝	11½	1,400	13½	13½	13½	Standard Oil of Nebraska	188,403	$25	....	6-20-34	....	12	7¾	16⅞	8¼
35½	21¾	6,700	35½	29¾	35½	Standard Oil of Ohio	753,740	$25	....	1-3-33	....	23⅝	11½	28½	12¼
4½	2⅝	84,000	4½	3½	4½	Sunray Oil	1,610,810	$1	....	4-15-31	....	2⅞	⅞	2	⅟₃₂
9¾	6	2,100	7	6¾	6⅝	Texon Oil & Land	336,028	N.P.	15cQ	3-31-36	.60	6¾	5	11	4⅜
7½	4½	5,000	6⅛	5⅜	5¾	Texas Gulf Producing Co.	888,063	N.P.	....	12-29-34	....	4¾	2½	7	3⅜

*Ex-dividend. †Includes extras. ‡Payable in Canadian funds.

Note.—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

NEW OR IMPROVED EQUIPMENT

Natural Gas or Distillate Runs Tips Oil-Field Power Units

An improved type 40-horsepower horizontal four-cycle engine, which uses natural gas or distillate for fuel, has been placed on the market by

Tips Engine Works, Third and Crockett Streets, Austin, Tex. It is designed particularly as an oil field pumping power unit, whether the requirements are for pumping wells singly or in groups from a central power plant.

An outstanding feature of this engine is its hand-starting pumps, eliminating "tramping" in starting. The self-starter, with two or three strokes of a lever, builds up compression, making starting easier.

Any parts of the engine are readily accessible for inspection and repairs or replacements. Each engine comes furnished with foundation plan, anchor bolts, templet and all necessary pipe connections for installation.

Bulletins, Booklets and Other Literature for the Trade

A bulletin announced by Fisher Governor Co., Marshalltown, Iowa, describes and illustrates the company's new low-pressure Figure No. 50 indicating pressure gauge.

"Present Zone Isolation Method Proved 20 Years Ago" is among interesting articles in the current issue of Hot Shots, published by Lane-Wells Co., Los Angeles, Calif.

Gas Power, Inc., Esperson Building, Houston, Tex., announces it will send to any petroleum engineer or experimenter who will write for it a chart for rapid calculation of the weight of a column of gas in a well.

Among articles in the current issue of the Yellow Strand, published by Broderick & Bascom Rope Co., St. Louis, Mo., is one on "What Gives Long Life to Wire Rope?"

The Covic diesel engine, for the manufacture of which the Covic Diesel Engine Co., Cotton Exchange Building, Los Angeles, Calif., has American rights, is described in a bulletin obtainable from that company.

An eight-page bulletin announced by Oil Well Supply Co. is devoted to its No. 100 and No. 150-A oilbath rotary swivels.

Tulsa Winch Manufacturing Co., 823 East First Street, Tulsa, is sending on request a 12-page bulletin describing Tulsa truck winches.

Rejuvenation of gas distribution systems with Carboseal is discussed in Bulletin No. 1, obtainable from Carbide & Carbon Chemicals Corp., 30 East Forty-second Street, New York. The Carboseal process is designed to reduce gas losses and leakage by expansion of the jute packing, and to reduce corrosion, lay dust caused by corrosion scale and diminish pilot outages.

Of unusual interest to users of separators are three mailing pieces, illustrated with actual photographs, prepared by Black, Sivalls & Bryson, Inc., Oklahoma City, Okla. They are designated as separator letters Nos. 1, 2 and 3.

The Linde Air Products Co., 205 East Forty-second Street, New York, has ready for distribution a 12-page booklet on "How to Bronze-Weld," summarizing available information on bronze-welding and bronze-surfacing.

The Babcock & Wilcox Tube Co., Beaver Falls, Pa., announces a 16-page illustrated booklet presenting "Seven Facts About Boiler Tubes." It explains the effect of the manufacturing process upon the quality of a boiler tube and answers important questions.

Sullivan Machinery Co., Michigan City, Ind., announces a new bulletin entitled "Selective Pumping." It describes the Sullivan pumping-head for oil-well pumping and gives the results of tests conducted by the company with the cooperation of oil companies.

"Safe Steels for Subzero Service" is the title of a 12-page bulletin obtainable from the International Nickel Co., 67 Wall Street, New York.

Men Widely Known in the Equipment Field

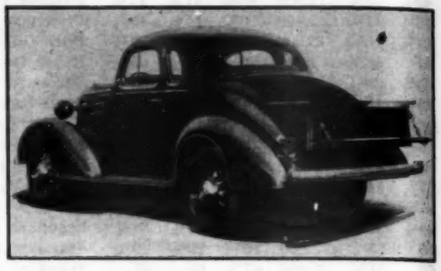
W. Powers, manager of the lubrication division of the McCord Radiator & Manufacturing Co., Detroit, Mich., has charge of lubricator sales for

W. POWERS

that organization. Traveling extensively during the last year, he has contacted engine builders as well as users of McCord lubricators.

Chevrolet Coupe Pickup Makes Handy Car for Oil Fields

A new vehicle combining passenger-car appearance with the utility of the small commercial car has been added by Chevrolet Motor Co. to its line. It is called the coupe pickup, because it consists of



a regular standard coupe and a pickup body built in the rear compartment of the passenger body, extending slightly beyond the sweeping curves of the rear deck. The combination offers passenger-car comfort and smart appearance with the utility of the ordinary commercial pickup body. It is designed especially for delivery service and for use by oil-field workers, electricians, plumbers, contractors and others who haul compact loads.

The load space of the box is 60 inches long by 41⅞ inches wide, inside. The opening under the rear deck is 16¼ inches deep, which permits the loading of large objects well forward on the platform. When the tail gate is lowered flush with the floor, the platform is 71 inches long. To support the pickup load adequately, sedan chassis springs are used in the rear instead of the lighter coupe springs. A special tool compartment behind the seat is reached easily. The regular assortment of tools is furnished, except that a jack of 2,000-pound capacity is included.

Leaky Joints Are Detected by Blowout-Preventer Tester

The Okeh blowout-preventer tester, used for finding leaks in joints or fittings above surface casing, is the product of Texas Rubber & Specialty Corp., Houston, Tex. This safety tool, which assures the operator that equipment is in proper condition for drilling, is employed also to test the strength of the crownblock and the drilling lines, a definite load against the tester being applied for checking against the weight-recorder. About 15 minutes is required for the test, according to the manufacturer.

The assembly includes a heat-treated, triple-strength steel sub upon which is mounted a rubber sealing-head. Fluid for testing is confined within a given space, sealing outwardly against the casing and inwardly against the drillpipe sub.

In making the test the driller picks up a length of drillpipe off bottom equal to a thribble, and sets his slips. The drillpipe then is broken out and a tester made up between joints, making up single, or double if required, above the tester, which then is lowered so that the rubber head will stop at any point desired below the master gate-valve. The drillpipe then is hung on elevators and the weight shown on the indicator. Rams of preventers are closed, and discharge of the pump, or pumps, connected to the fill-up line.

Slush or water is pumped at the pressure desired for the test. The tester rubber seals at the bottom and preventer rams seal at the top, while the weight indicator shows the pressure exerted. Thus equipment demonstrated to be leaking can be replaced before damage occurs.

Beaumont Introduces New Tool for Sidetracking Operation

A sidetracking method which departs radically from conventional practice has been made possible through the E. & W. sidetracking tool, a product of Beaumont Well Works Co., Box 1684, Beaumont, Tex. Patent application has been filed, and the tool is being introduced to the field in the form of a sidetracking service.

The problem of sidetracking through casing, the milling tool cutting into the whipstock as well as the casing itself, is said to be eliminated because of a wedge that precedes the mill, prevents it from contacting the whipstock, and also locks the whipstock and prevents it from turning. The necessity for such a tool has become greater in recent years since the introduction of grade "D" casing, cutting the initial section of window opening through which has been a tedious and difficult job. Under the old sidetracking method the burden of strain has been as much against the concave of the whipstock as against the casing; and continued improvements in casing quality have competed with the quality of steel in the whipstock.

The wedge of the E. & W. sidetracking tool is connected to a bar over which the cutter (milling tool) feeds automatically with rotation of drill pipe, practically eliminating the human element in sidetracking. The outside of this wedge fits and travels along the inside of the casing, while the inside is grooved to fit and travel along the concave of the whipstock. When the tool is lowered against the whipstock and set, the whipstock is locked in place. Position of the wedge places the bar parallel with the whipstock concave so that the milling tool in its travel along the bar cannot cut the whipstock, but must feed in an even course into the casing at the angle of the whipstock concave.

In the top of the wedge is a bearing in which the bar rotates, and at this point the automatic feeding of the cutter is controlled to strict precision in such a manner that a driller cannot push the operation to the point of overworking it. The tool is designed to cut a 4-foot window. When this distance is completed by the cutter traveling its course over the bar the pumps are shut down by the automatic closing of the water course, notifying the operator he has made his 4-foot window and is safely through the casing.

Rivetless Firebox Is Feature of Lucey Oil-Country Boiler

The new type of rivetless-firebox oil-country boiler put on the market by Lucey Boiler & Manufacturing Co., Chattanooga, Tenn., is designed to meet the increasing demand for efficiency in steam power plants for drilling rigs. The principal innovation incorporated in this line of boilers is butt welding of the firebox-heads to the firebox-wrapper, a feature protected by patent. This construction, approved by the A.S.M.E. boiler construction code, provides between the fire and the water a section of metal of uniform thickness throughout, and the heat transfer is not retarded by lapped plates or rivet-heads.

This type of construction is designed to eliminate overheating, leaky seams and burned rivet-heads. Greater horsepower rating is possible without increase in the rate of firing.

In tests conducted on four Lucey 100-horsepower rivetless-firebox boilers, each with 1,040 square feet of heating surface, 9,330 feet of gas with a heat value of 10,701 B.t.u.'s was burned per hour in each. The steam produced per hour in each boiler was 6,547 pounds, a ratio of .612 pound of steam to each 1,000 B.t.u.'s of gas burned.

Uses Any Standard Motor

To meet the need for a variable-speed drive which combines in a compact, self-contained enclosure any standard make of constant-speed motor, variable-speed control mechanism and (where required) speed-reduction gears, Reeves Pulley Co., Columbus, Ind., has developed the Reeves Vari-Speed Motodrive. Any make of foot-type, constant-speed motor, within standard NEMA dimensions, may be used. Speed variations as provided by the Motodrive is infinite between predetermined limits. Merely by turning a handwheel any desired speed within the range is made smoothly and quickly available to insure maximum operating efficiency of the driven machine. A convenient dial indicator registers speeds on a scale calibrated from 1 to 6.

Crosby Company Organized

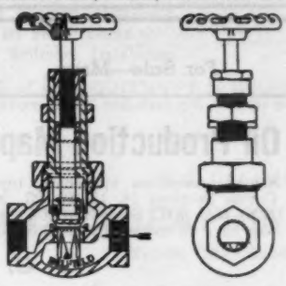
The newly organized Crosby Steam Gauge & Valve Co., Inc., of California, with offices, shops and warehouses at 2034 Santa Fe Avenue, Los Angeles, will maintain a complete stock of Crosby safety and relief valves and gauges. Shop facilities have been established for the repair and service of all types and makes of safety and relief valves and pressure gauges. George H. Christen is manager of the new company.

Baroid Opens Tulsa Office

Baroid Sales Co. announces the opening of a Mid-Continent office and laboratory at 502 Tulsa Building, Tulsa. D. A. Sikes, sales manager for the Mid-Continent, is in charge. The laboratory, similar to the ones at the Los Angeles and Houston offices, is completely equipped to test drilling muds. Oil company engineers, drilling contractors or others interested in drilling muds are invited to visit the laboratory at any time and make use of its facilities.

Valve Can Be Set to Maintain Constant Pressure or Flow

The Belfield "Hi-Lift" hand-operated regulating valve, with micro-thread and V-port disc, is announced by the H. Belfield Co., Broad, Hamilton and Noble Streets, Philadelphia, Pa., as a new design of valve which can be set by hand control to hold a constant pressure or flow accurately.



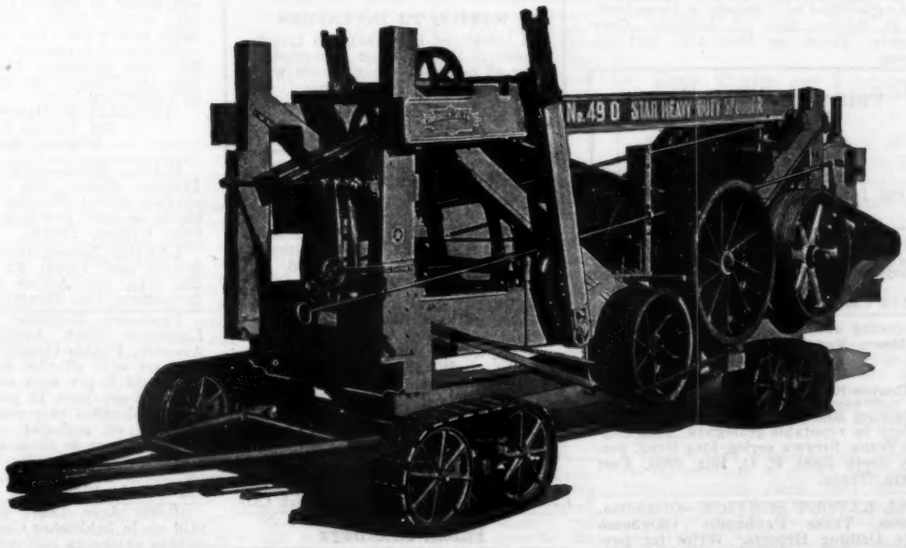
Temperatures can be maintained by setting to control the steam flow. The valve has a positive no-play connection between the stem and the plug, which means that there is no slack to be taken up before moving the plug. The high web permits full volume control in all positions. The long V-port disc provides accurate regulation, and the micro-thread insures minute regulation as the wheel is turned. Besides affording an accurate setting the valve is adopted for by-passing any type of regulator, so that when automatic regulation fails, the valve, by hand, will give accurate regulation.

Wagner's Gear-Motors Deliver Power at Any Speed Rate

To meet requirements for power delivered at any desired speed, Wagner Electric Corp., St. Louis, Mo., has developed fractional-horsepower gear-motors suitable for direct connection to stokers, agitators, conveyors, low-speed pumps, mixers, or any application requiring special speeds. They are described as highly efficient and compact.

Wagner gear-motors are available in single-reduction and double-reduction types, with right-angle shaft drive; and in single-reduction, double-reduction, and triple-reduction types with parallel shaft drive. They are available for delivering power at speeds as low as 6 r.p.m. The gear-case incorporates a phosphor-bronze worm-gear driven by a heat-treated nickel-alloy steel worm. The low-speed output shaft is on two roller bearings.

Star Spudder Available in Trailer Model



Star No. 49 heavy duty spudder made by the Star Drilling Machine Co., Akron, Ohio, is now available in a trailer model mounted on four crawler wheels and equipped with a 150 horsepower drilling engine mounted on the frame. Standard rig performance with portable machine economy is said to be gained with this new unit. According to the manufacturers it easily handles a 5½-inch by 36-foot stem and drills to 4,000 feet. With shear poles the mast is said to have a capacity of 60 tons. Other features emphasized by the manufacturer are improved brakes, air-cooled alloy brake-wheels, chain drive on all reels and roller-bearing crownblock. Three of these units recently were shipped for service in the Bahrein Islands.

CLASSIFIED ADVERTISING

For Sale—Maps

Oil Production Map Oklahoma City Extension

Shows production up-to-date, top of sand and total depths on completions. Covers Sections 14, 15, 22, 23, 26, 27, and N½ of Sections 34 and 35, Twp. 12N, Rge. 3W. Scale 400' to the inch and all locations have been scaled in. Size 32 x 48 inches. Price $7.50, blue line on paper; $10.00, blue line on cloth.

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MAP OF NEW TALCO FIELD, Titus and Franklin Counties, Texas. All West Texas Counties. Send $1.00 for Oil Map of Texas and Eastern New Mexico.
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OIL Production, Royalties, Leases, Land and estimating their values, has been my work for the past 30 years, with headquarters here, but covering parts of Oklahoma and New Mexico, States of many opportunities. I offer my services and experience to investors in these lines. E. B. Reeves, Box 13, Alanreed, Gray County, Texas, or Box 475, McLean, Texas.

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CENTRAL KANSAS ROYALTY: on structure, ¾ mile from new producer. Price very low. George E. Hrdy, Cawker City, Kansas.

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I BUY AND SELL oil royalties and producing wells, East Texas field. B. A. SKIPPER, Longview, Texas.

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HIGH GRADE producing oil and gas royalties offered to dealers. Billie Smallwood, P. O. Box 2261, Tulsa, Oklahoma.

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Leases—Production

NEW MEXICO—My weekly scout report furnishes complete and reliable information on New Mexico developments. Send for copy. W. S. Patterson, Santa Fe, New Mexico.

NEW MEXICO Oil and Gas Leases and royalties. Send 50 cents in stamps for new State Oil Map of New Mexico. Roy G. Barton, Clovis, New Mexico.

PROPOSALS invited—For oil lease and drilling contract on 3407 acres favorably located in Houston County. Solid. Good titles. Quick delivery.
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Crockett, Texas.

CONSIDER drilling proven acreage of merit, Kans., Okla. or Tex. on interest basis.. Submit full details first letter. Box 5005, Shawnee, Oklahoma.

MEXICO—GOLD-SILVER-MINING-PROPERTY. 257 acres in one of the richest mining districts of Mexico, surrounded by large gold and silver producers. Owner sells 35% for $100,000 to install a 25 ton mill and other expenses. Will agree to pay money back out of first profits and you keep the 35% ownership. Report sent to persons who can qualify. P. O. Box 268, Las Vegas, New Mexico.

12,500 acres ⅞ths 88 leases Noxubee County, MISS. Woodbine sand 2200-2500 ft. 6c acre and 1/64th roy. 5 mos. free, 25c rentals. Operators only. Box 303, Memphis, Tennessee.

SALE OF OIL PROPERTIES
The Trustee of The E. F. Jones Oil & Gas Company, debtor, has filed with the Referee in Bankruptcy, Wichita, Kansas, petition for order to sell, free and clear of all liens, incumbrances and claims there against, to the highest bidder therefor, the following producing oil and gas leases and personal property:
The John Rose lease and the Santa Fe Lease in Rice County, Kansas;
The Howard Holmes lease and the William Flook lease in McPherson County, Kansas;
The Memo S. Lehman lease in Harvey County, Kansas;
The William Brown lease and the Peter Lygrisse lease in Sedgwick County, Kansas;
together with the personal property thereon; the electric rotary drilling outfit now located on the John Rose lease near Chase, Rice County, Kansas, including drilling pipe, rotary rig and such other equipment as belongs to, or is a part of, said rotary outfit; also two strings of cable tools; ten (10) completed wells.
Petition for sale set for hearing April 25, 1936. Interested bidders should contact the Trustee for details in manner of submitting bids.
DONALD H. MacIVOR, Trustee,
301 Bitting Building
Wichita, Kansas.

Drilling Block—3,000 acres in Texas Permian Basin. On line between two shallow pools: Humble holds two large blocks in close proximity. Address H. B. Opp, Burnet, Texas.

LANDS, Leases, Royalties, anywhere, bought, sold. Lands, $2 acre, up. Leases 25c acre, up. Advise needs. American Investment Co., Houston, Texas.

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912 Travis Bldg., San Antonio, Texas

10,000 Acre Lease for Sale—5-year paid up in Schleicher County, Texas. Big drilling campaign just getting under way, one 12,000,000 foot gasser completed, two wells now drilling, two more to start soon. Address H. B. Opp, Burnet, Tex.

FOR SALE, OIL AND MINERAL RIGHTS, under lands in Eastern Colorado, leased in solid blocks, largely by major companies; taken after seismic surveys and core drillings. Titles clear. Get ready for the next big oil play. Warren Shamburg, Burlington, Colorado.

Leases—Production

N.W. ALABAMA—26,000 Acre 10 year lease. 10 cents acre. Smaller tracts 25 cents. W. A. Feild, 321 W. 16 St., Little Rock, Arkansas.

NEW MEXICO Oil and Gas Leases and Royalties. Also inquiries and listings wanted. F. R. WARN, Santa Fe, New Mexico.

SAN JUAN Basin, New Mexico, Offering 320 acres top of structure including Midwest Discovery well, high gravity oil 1,000 feet; wonderful deal for developer or promoter.
Roy G. Barton, Box 191, Clovis, N. Mex.

For some reliable Independent Operator that would like to make a "killing," I have an exceptional proposition on practically proven acreage. Will bear the closest investigation. Southwest Texas. Principals, no Brokers. Address Box H-224, The Oil and Gas Journal, 809 Sterling Bldg., Houston, Tex.

FOR SALE—Commercial and drilling blks. in Western Kans. No rentals for two years. Box 24, Dodge City, Kans.

WANTED—Party to drill Lease adjacent production Burrton Field, Kansas, on percentage base, will pay Premium for first production. Also drill well defined structure, Wyoming. Majors all around. I need Crude. F. B. Renfrow, Canon City, Colorado.

Incorporations

DELAWARE CHARTERS: Complete incorporating and organizing service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CHARTERS — Delaware best, quickest, cheapest, most liberal. Free forms. Colonial Charter Co., Wilmington, Del.

Financing

JAMES E. MILLER, 604 W. Seventh St., Tulsa, Okla., will aid in financial marketing problems. Fee basis.

WANT LOAN of one hundred thousand dollars, for 5 years, to Manufacture and sell new "Hydraulic Rotary Drill." Will give 5% interest plus twenty five thousand dollars bonus. Roscoe P. Ross, Mound City, Missouri.

GOLD MINE
54,000 tons of ore blocked, value $18.42 per ton. Need $25,000.00 to place on paying basis. Will give liberal interest and ample security for amount required—adjoins producing property. Address Box H-234, The Oil and Gas Journal, Tulsa, Oklahoma.

PROSPECTUSES prepared and deals shaped up for registration or exemption under Federal Security Act. Fee basis. John Morris, Box 5411, Philadelphia, Pa.

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Classified Department

The Oil & Gas Journal
TULSA, OKLAHOMA

Special Offering of Pumps

We are offering a miscellaneous assortment of pumps which have accumulated in our stocks recently and will be sold at bargain prices for quick sale.

1—Worthington Duplex Pump, size 18x5x18, Serial No. 278748, 4" suction, 4" discharge.

1—Worthington Duplex Pump, size 18x5x18, Serial No. S29037, 4" suction, 4" discharge.

1—National Transit Duplex Pump, size 18x5x18, Serial No. 20511, 6" suction, 4" discharge.

1—Worthington Duplex Pump, size 14x8½x12, Serial No. 678832W, 6" suction, 6" discharge.

1—5" Worthington Centrifugal Pump, Class B-5, Serial No. 812212W, 715 g.p.m., 1,150 r.p.m., 98 ft. hd., 8" suction, direct connected to General Electric Induction motor, Model 16 and 72, Type KT 532 Block 6-30-1,200, Form B, Volts 2,200, amp. 7—No. 4565534, 30 H.P. continuous 40, 3 ph., 60 cy., 1,160 r.p.m.

1—3" Byron Jackson Centrifugal Pump, multi-stage, Serial No. 99714, 1,750 r.p.m., dated 1/19/1928, direct connected to General Electric Induction motor, 200 H.P., type KTP 557, Block 4-200-1,800 Form E, 440 V, 224 amps., No. 4834558, 3 ph., 60 cy., r.p.m. full load 1,760, Model 17526 with General Electric manual control compensator type CR 1,030, Cat. No. 2019085 G 4.

1—3" Byron Jackson multi-stage centrifugal pump, 1,750 r.p.m., Serial No. 99714, dated 1/18/1928 direct connected to General Electric Induction motor, 200 H.P., Model 17526, Type KTP, 557 Block 4-200-1,800 Form E, 3 ph., 60 cy., 440 V., 224 amps., speed full load 1,760 r.p.m., No. 4948262 —With General Electric manual control compensator type CR 1034, Cat. No. 2019085 G 4.

1—Worthington Duplex (piston type) Pump, Size 10x12, 8" suction, 6" discharge, Serial No. 280020 direct connected to General Electric Induction Motor 25/12.5 H.P., Model 17 E 294, Type KT 536, Block 16-25-900-450, Form B, 440 volts, amps. 32/531, No. 4950630.

2—Pacific, 8 stage, high pressure, solid shell Pumps, minimum capacity 2,000 bbls., 350 lbs. per 24 hours to maximum capacity 8,000 bbls., at 705 lbs. No power.

2—LeCourtnay Centrifugal Pumps, size 5x4 horizonal split shell, 3 stage, 300 g.p.m., 400 ft. hd. No power.

2—Byron-Jackson Centrifugal Pumps, 3 stage, size 3", 160 g.p.m., 1,110 ft. hd. No power.

1—Kinney Gear driven Rotary Pump, size 6", 725 g.p.m., 200 lbs. pressure, type SD 888, Serial No. 8497. No power.

1—Union Centrifugal Pump, 5 stage, size 4", Class M, serial No. 136510, 225 g.p.m., 427 ft. hd. direct connected to General Electric Motor, 40 H.P., 3 ph., 60 cy., 220 volts, 1,740 r.p.m.

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Four 55,000 bbl. all steel tanks near Seminole, Oklahoma, for rent, we own ground and pipe connections.

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2—80 H.P. Bessemer direct driven tandem compressors. 12" low, 7" high cylinders. (Ideal for repressuring.)
2—80 H.P. Bessemer direct driven compressors, 14" cylinders.
6—7' x 27' gasoline storage tanks.
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DIESEL ENGINE for sale. 225 H.P., 300 R.P.M. Chicago Pneumatic Tool Engine Direct Connected to G.E. 2,300 Volt, 187 K.V.A. Generator. Purchased Summer 1933. Run less than thirty-five hundred hours. Engine junk. United Power Company, 1105 First National Building, Oklahoma City, Oklahoma.

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air Compressor. Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
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SEVERAL USED ROTARY RIGS
Spudders and Drilling Machines.
Several Steel Derricks & Rotary Equip.
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TWO—300 amp. Lincoln Engine driven welders. A-1 condition. Stationary type. Service Co., 3732 Cedar, Cleveland, Ohio.

FOR SALE: 400 ampere portable welder. No. 25 Star drilling rig. 1,000 barrel tube still. Noel Owens, Chanute, Kansas.

Wanted

WANTED—Financial participation for erection of small new refinery. Equip. cos. particularly invited. Address Box H-123, The Oil and Gas Journal. Tulsa, Okla.

Mailing Lists

OF ROYALTY investors by deed, guaranteed. Oil Industry Mailing List Co., Tulsa Loan Building, Tulsa, Oklahoma.

ROYALTY OWNERS
Names and addresses in any State. Royalty Lists, Box 105, Ft. Worth.

Help Wanted

Engineer Wanted

Engineer experienced in designing oil field drilling equipment. Good opportunity for competent man. Give full particulars of experience and education which will be considered strictly confidential. The men in our Company are acquainted with this advertisement. Address Box H-221, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED — Sales representative to handle line of pumping units in Mid-Continent territory. Please state previous experience in first letter. Address Box H-235, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED—Sales representative to handle line of oil country chain on commission basis in Oklahoma and Kansas with headquarters in Tulsa. Representative with few non-conflicting lines preferable. Address Box H-236, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED for sales work in Mid-Continent territory. Technically trained engineer with practical experience in design, field or shop. Age 25 to 30 years. Give full details in reply which will be treated confidentially. Address Box H-233, The Oil and Gas Journal, Tulsa, Oklahoma.

MECHANICAL ENGINEER — Experienced in design and operation of oil well surface pumping equipment. State age, school and year graduated, detailed experience, salary, and other pertinent factors. Also enclose small photo. Address Box H-231, The Oil and Gas Journal, Tulsa, Oklahoma.

WANTED: Recent Petroleum or Chemical Engineering graduate, who can type. For combination engineering and clerical position. Box H-230, The Oil and Gas Journal, Tulsa, Oklahoma.

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GEOLOGIST — 7 years major company experience, surface and sub-surface, desires connection either straight salary or interest and expense basis. Best references. Address Box H-220, The Oil and Gas Journal, Tulsa, Oklahoma.

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April

16-18—Cleveland, Ohio, National Petroleum Association, semiannual meeting, Cleveland, Hotel.

20-25—Houston, Tex., Oil Equipment and Engineering Exposition.

21-22-23—Norman, Okla., Southwestern Gas Measurement Short Course.

May

5-8—Dallas, Tex., A.G.A. Natural Gas Department, Baker and Adolphus Hotels.

13-15—Tulsa, midyear meeting, American Petroleum Institute, Mayo Hotel.

13-15—Tulsa, Natural Gasoline Association of America, fifteenth annual convention, Hotel Tulsa.

15—Tulsa, Institution of Petroleum Technologists, American Meeting, Mayo Hotel.

16-23—Tulsa, International Petroleum Exposition and Congress.

21—Tulsa, Independent Petroleum Association of America, midyear meeting.

22—Tulsa, National Stripper Well Association.

25-27—New York, A.G.A. Production and Chemical Conference.

25-28—New Orleans, La., National Association of Purchasing Agents Convention.

June

17-20—Dallas, Tex., American Society of Mechanical Engineers.

18-19—State College, Pa., Pennsylvania Grade Crude Oil Association, thirteenth annual meeting.

June - July

29-July 3—Atlantic City, N. J., A.S.T.M., annual meeting.

September

7-12—Pittsburgh, Pa., American Chemical Society, semiannual meeting.

?—Tulsa or Oklahoma City, American Petroleum Institute, Division of Production, Mid-Continent district.

October

?—Cleveland, Ohio, American Institute of Mining and Metallurgical Engineers.

November

9-12—Chicago, American Petroleum Institute seventeenth annual meeting.